SmartScore 3
User Manual

Public Beta Edition
For Reference only

Chapter 1 Scanning and Recognition

1.1 Scanning Music

Be sure you have the necessary scanner drivers installed before attempting to scan from inside SmartScore. Most scanners come with software that enable programs such as SmartScore to control them. TWAIN drivers and/or Mac plug-ins are normally included in the software packaged with most scanners. It may be necessary for certain Mac users to perform a "Custom > TWAIN" installation from the CD accompanying your scanner, depending on the manufacturer.

NOTE: Scanner drivers are often updated by scanner manufacturers and posted on their web sites. If problems occur during scanning, it is always a good idea to check the Internet for updated scanner drivers before calling Musitek Technical Support.

Mac Only: Skip the next section. Turn to "Scanning for Mac" on page 7.

1.2 Scanning in Windows: Using the SmartScore Scanning Interface

a. Push the **Scan** button in the Navigator or in the Main Toolbar.

FIGURE 1 - 1: Scan Button

NOTE: If there is no response, go to **File > Scan Music > Select Scanner** and choose appropriate TWAIN driver. If you do not see anything listed in the **Select Scanner** window, your drivers are probably not installed. Install or replace TWAIN driver from scanner CD or from "Driver Download" area of scanner manufacturer's website.

If the scanner still does not operate properly, go to “Choosing an alternative scanning interface” on page 6.

Your scanner should begin to operate with **Scan** or **Acquire**. A low-resolution pre-scan will appear in the Preview window along with a black bounding box surrounding the music. The bounding box should encompass the entire image area that you wish to scan. Edges of the box should be about 1/4” away from the printed image.

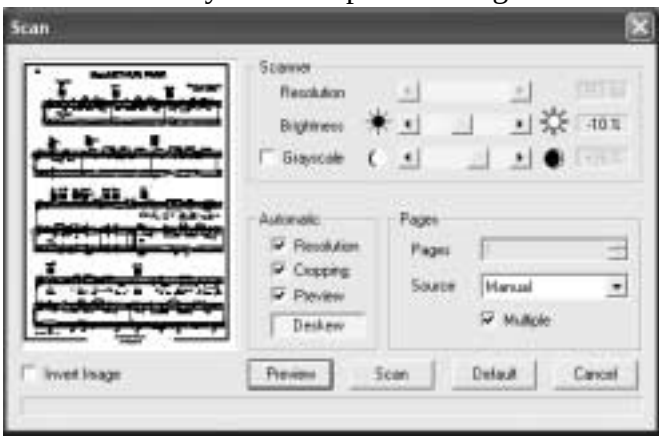


FIGURE 1 - 2: SmartScore scanning interface

NOTE: If the preview image appears with white notes on black background, this means your scanner is reversing image polarity. In this case, you will want to check the box, **Invert Image**, below the Preview window.

b. To resize the bounding box, click and drag any of the 4 sides so there is at least 1/4” of white space between the bounding box and the music which you are scanning.

c. To scan more than one page, make sure **Multiple** is checked.

d. Push the **Scan** button to create a final high-resolution scan of first page. You will be prompted to scan additional pages until all pages are successfully scanned in.

The following section lists image-enhancement and scanner settings which you can control within the SmartScore scanning interface. If you understand and/or accept the default settings in the **Scan** window, turn to “Recognition Sequence” on page 11 to complete scanning and to begin the recognition process.

1.2.1 Automatic image-enhancement functions

The SmartScore interface has 4 automatic image-enhancement functions.

- **Auto Resolution**

This feature takes the guesswork out of choosing the correct resolution (dpi) setting for each scan. When selected, the image is analyzed and sized in order to obtain an optimum image resolution, thus achieving the highest possible recognition accuracy. Use this feature whenever possible.

- **Auto Cropping**

The cropping rectangle defines the final image area. You may change its size by dragging any edge with your mouse. The cropping rectangle should not intersect or interfere with any part of the music. There is no need to extend the length of the rectangle beyond your area of interest. SmartScore will automatically center each page of music to the selected default page size. After the preview scan is completed on each page, check that the image in the preview window is straight and properly cropped.

- **Auto Deskew**

After an image is previewed, toggle this button on and off and choose the setting that gives you the straightest possible image. If you are unable to make the image appear straight in the Preview window, auto deskew failed. Reposition your music in the scanner and preview again.

- **Override Grey**

SmartScore's scanning interface uses standard TWAIN commands to control scanner settings such as resolution and color selection. Some scanners use "image intelligence" that automatically select scanner settings. Many of these scanners "think" printed music is a photograph and create a ***grey*** image which is then "dithered" to black and white. If recognition fails or results are extremely poor, zoom If the image appears as small speckles (salt-and-pepper) rather than solid black, then the image has been dithered. In this case, re-scan with the **Override Grey** option checked in the SmartScore interface.

FIGURE 1 - 3: Image dithered by scanner “intelligence”

NOTE: If still you fail to get a workable image using SmartScore’s scanning interface, turn to “Choosing an alternative scanning interface” on page 6.

1.2.2 Scanner settings

- **Darkness / Brightness**

The default darkness setting is -10%. For typical printed music, this setting should be fine. If beams smear together and whole and half notes appear closed or “blobbed”, then brighten the scan. If the original music is faded, if it is a weak copy or if it has become degraded, you may want to scan even darker than the default setting. SmartScore wants to see solid, well-defined lines that are neither razor-thin nor smeared together.

NOTE: If recognition accuracy is poorer than expected, examine the file in the Image Editor. Zoom in and determine the following:

- If objects lack detail, rescan with increased resolution.
- If objects such as note stems and staff lines are broken or lack thickness, rescan with increased darkness.

- **Resolution**

It is recommended that you use Auto-Resolution whenever possible. If you choose to set resolution manually, check Auto-Resolution off. For most printed music, the recommended resolution is around 350 dpi.

If the original music is printed in smaller type, you can increase resolution to 400 or 450 dpi. For miniature scores, try 500 dpi. Scanning at too high or too low a resolution may actually reduce recognition accuracy. It is not recommended to scan music below 250 dpi or higher than 600 dpi.

- **Manual or Automatic Source (Document feeder)**

Normally, you will preview and scan one page at a time. Some scanners have automatic document feeders. If you choose **Automatic** option, you will be able to scan multiple pages at once. However, you will only be able to preview the first page. If you select **Automatic,** make sure when you preview the first page that the entire page is selected and not cropped. Remaining pages will be scanned and fed without preview checking.

1.2.3 Choosing an alternative scanning interface

If your scanner does not respond to the **Scan** command or your scanned image is unacceptable (partially scanned, grey, color, etc.)...

a. Check that your scanner is on and that the proper driver is installed (**File > Scan Music > Select Scanner)**. If a compatible driver is not present, you will have to reinstall your scanner's software either from the original CD or by downloading the most recent scanner driver from your scanner manufacturer's web site. If the above is true and pushing the **Scan** button in the Navigator still causes problems, your TWAIN driver is probably incompatible with SmartScore's own scanning interface.

b. Switch to the scanning software that was installed with your scanner. To do this, go to **File > Scan Music > Choose Interface > Your Scanner's.** When you push the Scan button, you will then be handed off to your scanner's interface.

If you are using your scanner's interface, follow the following guides:

- Place music in the scanner as squarely as possible.
- Scan in Black & White (*Line Art, 1 bit* or *OCR).* Do not scan in color or in greyscale. "Black & White Document" may be grey.
- Crop in the music to be scanned by dragging mouse in preview.
- Scan between 300-400 dpi (average printed music).

1.2.4 Working with HP scanners with PrecisionScan

Newer HP model scanners and a few other "intelligent" scanners need to be coaxed to avoid creating dithered grey images. Follow these steps

if you wish to use the SmartScore user interface with you HP scanner: Instead of dithering, a technique called thresholding will be used.

a. Select **File > Scan Music > Choose Interface > SmartScore's**.

b. Check the **Override Grey** button in the SmartScore interface.

NOTE: Adjust the midpoint where light grey pixels go to white and dark grey pixels go to black by using the **Threshold** slider.

1.3 Scanning for Mac

1.3.1 Scanner drivers for Mac

Make sure you have installed the scanner drivers that came with your scanner. Often it is necessary to select "Custom Installation" and then choose "TWAIN" and/or "Plug-ins" to install these specialized drivers.

- **TWAIN**

a. Select your scanner's TWAIN driver by going to **File > Scan Music > TWAIN Select**. If your scanner's icon is visible, click it.

b. Test scanner by pushing the Scan button in the Navigator or by choosing **File > Scan Music > TWAIN Acquire**.

NOTE: If your scanner works, disregard the plug-in option below.

- **Plug-ins**

If your scanner does not include a TWAIN driver or if it does not respond properly, try operating your scanner with a Plug-in instead:

a. To quickly test your scanner, go to **File > Scan Music** and select the plug-in for your scanner. We have included a number of common plug-ins as a courtesy. Then push the **Scan** button in the Navigator or select **File > Scan Music > TWAIN Acquire** to test.

b. If you do not see your scanner listed in **File > Scan Music > TWAIN Select**, go to your scanner's directory, look for the scanner plug-in and make a copy of it (**Cmnd** + **D**). Drag the copied plug-in to the **Plug-Ins** folder inside the **SmartScore** folder. (To search for plug-ins, click on the desktop, select **File > Find** and search for "plug-in".

NOTE: If you own Adobe® Photoshop®, your scanner plug-in may be found inside **Photoshop > Plug-ins** folder.

c. Once your plug-in or TWAIN source is selected, you need only to restart SmartScore and push the **Scan** button in the Navigator or Main Toolbar or choose **File > Scan Music > TWAIN Acquire** to initiate scanning from then on.

FIGURE 1 - 4: Scan Button

If your scanner still does not respond, please refer to “Scanning Outside of SmartScore” on page 17.

NOTE: Older plug-ins and drivers may not work with SmartScore. If so, try downloading the most current TWAIN driver or plug-in from your scanner manufacturer’s web site.

1.3.2 Image Preview

SmartScore uses your scanner’s interface to acquire pages of music. You are able to scan many pages of a score and save those pages grouped into one single, compressed, multi-page TIFF image file. In addition, SmartScore will sample your preview scan and will recommend the optimum resolution for you to set in your final scan.

a. Place the first page of your score face down into your scanner.

b. If your scanning software has a ***Preview*** button, push it.

NOTE: Preview only the first page in your scanning program. You will preview all subsequent pages in SmartScore’s interface.

Notice the scanning ***region*** defined in your scanner’s preview window**.** The scan region is bounded by flashing dots, marching ants or by some other obvious delineator and can be resized. The selected region identifies the boundaries of the image passed to SmartScore’s interface.

c. With your mouse, click and drag the edges of the scan region to its **maximum** size. It is very important to acquire a full-page

image at this stage. Otherwise, subsequent scans may cut off parts of the music on the following pages.

d. You will be prompted for the best possible resolution in dpi. Select the recommended resolution in your scanning interface. Once set, press the **Scan** or **Final Scan** button in the scanning window.

1.3.3 Scanner settings

You want to scan images with the resolution and darkness optimized for SmartScore. All scanning software is different, so locating the following controls may take some poking around.

Find the controls for **Resolution (dpi)** and **Darkness / Brightness**.

- **Resolution**

You will be prompted to set an optimum scanning resolution for your scanned music. If you wish to choose another resolution, we recommend 350 dpi for most music. If the original music is printed in smaller type, increase resolution to 400-500 dpi. For miniature scores, try 600 dpi, but don't expect miracles if the music has extremely small print. It is not recommended to scan music below 250 dpi or higher than 600 dpi.

- **Darkness / Brightness**

For typical printed music, scan slightly darker than "0" setting (e.g. -10). This tends to "fatten up" objects. If the original music is faded, if it is a weak copy or if it has become degraded, you may want to scan even darker (e.g. -20). If beams smear together and whole and half notes appear closed or "blobbed", then brighten the scan (e.g. +10). SmartScore wants to see solid, well-defined lines that are neither razor-thin nor smeared together.

If your scanner does not respond properly after pushing the **Scan** button and you have checked that your TWAIN driver and/or plug-in is properly installed, turn to "Scanning Outside of SmartScore" on page 17.

1.3.4 Image Processing

After a page is scanned, the *Image Processing* window will open...

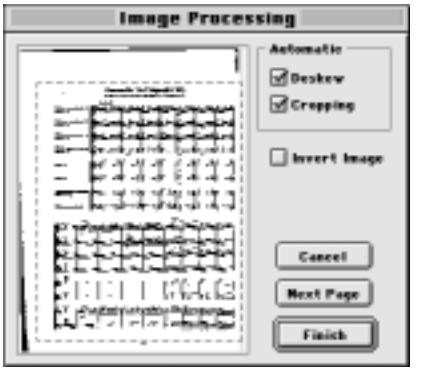


FIGURE 1 - 5: Macintosh Image Processing window

- **Auto Deskew**

Once an image is previewed, toggle this button on and off and choose the setting that gives you the straightest possible image. If you are unable to make the image appear straight in the Preview window, reposition your music in the scanner and preview again.

NOTE: If the preview image appears mostly black, this means your scanner is reversing image polarity. In this case, you will want to check the box, **Invert Image**, next to the Preview window.

- **Auto Cropping**

The cropping rectangle defines the image area. You may resize by dragging any side with your mouse. The cropping rectangle should not intersect or interfere with any part of the music. There is no need to extend the rectangle beyond your area of interest. SmartScore will automatically center each page of music to the selected default page size. Check that the preview image is straight and properly cropped for each page previewed.

1.4 Recognition Sequence

a. After each page is scanned into the SmartScore scanning interface, you will be prompted to scan subsequent pages. Push **Next Page** and continue to preview, deskew and scan until you have finished scanning in your project, section or movement.

FIGURE 1 - 6: Scan Next Page / Finish window

NOTE: Before selecting **Next Page** place the next page into the scanner and wait until the scanner bar resets. If you push too soon, you may get an error message that "Scanner cannot be found." or "Scanner is not ready."

NOTE: If the piece you are processing exceeds 24 pages, divide it into smaller, discrete sections, e.g. Intro, Part1, Part2, etc.

b. When you have completed previewing and scanning all pages, push **Finish**. If you select **Cancel**, scanning will be terminated and you return to the Scan window.

c. To begin recognition immediately, choose **Save As and Begin Recognition**. Choose **Open Pages in Image Editor** to view scanned pages and to make alterations such as cropping, deskew, line drawing, cutting and pasting, etc. Choose **Cancel** to stop.

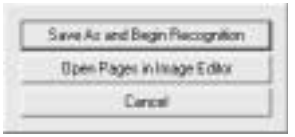


FIGURE 1 - 7: Scan Next Page / Finish window

NOTE: If you select **Open Pages in Image Editor**, turn to "Image Editor" on page 25 to learn about editing scanned images.

To save your scanned image file and begin recognition sequence,

a. Push the Save As and Begin Recognition button or OK *(Mac)*.

b. Browse to a location for saving your SmartScore working files. You may wish to add a unique directory at this time.

c. Give the image file a name. If you are using Windows, the extension ".TIF" will be added automatically.

d. Push **OK** to begin the recognition process.

The image file you have just saved contains all pages you scanned. The default filetype is "Compressed TIFF" (CCITT Type 4), a multi-page, single-file TIFF compression format. This type of TIFF file is approximately 10 times smaller than an uncompressed TIFF image file.

NOTE: If you are going to open the scanned image in Adobe Photoshop, you may want to save in the larger, uncompressed TIFF format; Photoshop does not currently support CCITT Type 4 files.

TIP: When you **Save** a file, SmartScore will continue to save to that directory until you change it. The same is true when you **Open** a file. Remember that SmartScore will look in one directory when opening a file and may default in a different one when saving a file. Once changed, the new path becomes the default.

1.4.1 Recognition Options

FIGURE 1 - 8: Recognition - Options

The following section describes options you can choose for recognition. When satisfied with your choices, push **Begin Recognition.** Turn to ".If you are working with an HP scanner and choose to scan outside of SmartScore, here are some guides for obtaining optimum black and white images. Good luck. It may not be easy." on page 18 to continue.

NOTE: If Recognition fails, refer to “Troubleshooting Guide” on page 23.

- **Text**

Check this box if you wish to recognize lyrics and text in the music.

TIP: If you are scanning in single-line parts for the purpose of joining them into a conductor's score, it is recommended not to recognize text. Otherwise, text from every score-part will be overlaid on the pages of the conductor's score.

- **Lyrics Under Last Staff of Systems**

Check this box if you are recognizing a choral or orchestral score that has dissimilar lines of lyrics written under every staff line, including the last staff line of each system. Otherwise, leave unchecked.

- **Triplets**

Check this box if the score contains triplets that are indicated with the number "3" along with an arc or bracket.

- **Implied Triplets**

Check this box if the score has repeated groups of three beamed notes (except for scores with "tripled time" signatures: x/3, x/6, etc.). The first grouping is usually indicated with a triplet marking. For the sake of convenience implied triplets are not repeated again.

- **Endings**

If the music has more than one ending indicated, check this box.

- **Pedals**

If pedal markings are written into the music, check this box.

- **Bowings**

If up/down bowing marks are written into the music, check this box.

- **Hymnal Fonts**

If you are scanning in music from a hymnal (with stubby flags), check this box.

- **Join Offset Voices**

Often you will see notes belonging to different voices appear horizontally offset, even though they sound at the same time. It is necessary for the recognizer to decide which notes to join and which notes not to join to a "vertical event" (See "Vertical Alignment and offset voices" on page 39). Normally, offset notes belonging to different voices have no more than 1/4 of a notehead's space between them.

  - If your music has offset voices which regularly exceed this distance, choose another distance. Distance is determined by the white space between noteheads.
  - If your music has dense polyphonic texture, like that found in solo guitar music or tightly-spaced orchestral passages, it may be necessary to "tighten up" the allowable distance between offset voices. In these case, choose a distance less than 1/4 of a notehead.

- **Part Linking**

When a score is "optimized", parts do not appear until actually played. Optimized scores have irregular numbers of parts (and staves) in systems. As new parts are introduced, they are normally added to the top, e.g. a vocal line appears on top after a piano introduction. However, sometimes parts are added to systems in a "bottom-up" fashion, e.g. existing staves are bumped upwards. If your score is structured in this way, change default to "**Add Parts to Bottom**". However, this is rather rare.

- **Fretboard Strings**

The default fretboard for recognition is the six-string guitar. If your music has ukulele fretboards (4 strings) or some other configuration, change the selection to the correct number of strings.

1.4.2 Post-Recognition

System Report
Number of Systems Found = 3 system(s) found on 1 page
Largest System Found = 3 parts found in 3 systems
Smallest System Found = 3 parts found in 3 systems
Light leaking into the margins of scanned music and brackets that are cut off are the most likely causes of systems that are incorrectly joined or split. Press "Open Image Editor" to locate and fix these causes. Select "Open Super System" to view detailed information
Do not show System Reports anymore
Open Image Editor
Open Super System
Open ENF file

FIGURE 1 - 9: Post-recognition System Report

Following recognition, a System Report will be displayed indicating the number of systems found and on how many pages. Most importantly, it will inform you of the largest and smallest systems including the number of parts found in each. If any of these structures do not coincide with the original music, you will want to investigate the cause before spending a lot of time editing the score... it may be difficult or even impossible to restructure parts and systems later on.

- If you select either ***Open ENF*** or ***Open Super System***, the first thing to be saved is the image file (scanned pages). The ***Save As*** > ***Image*** window has a field to type in a name for the image file.
- Following that, another ***Save As*** window will open. This is for the ENF file (the SmartScore file). It acquires the same name as was given the image file. It may be changed in the name field. Select a destination directory and press **Save** to save your new ENF file.
- If you select ***Open Super System***, you will be able to scroll from system to system and locate any systems containing an incorrect number of parts. See “System Manager” on page 97 for details.
- If you select ***Open Image Editor***, you will be taken to the image editor where you are able to correct certain flaws in the scanned image. See “Image Editor” on page 25 for more details.

The last window to open is to ***Unify*** key and time signatures. Selecting **Yes** will unify all key and time signatures based on what was recognized in the topmost part of the first system. The default is **No**. Select "No" if the piece is an orchestral score with transposed instruments. See "Unify Key, Time and Clefs (U)" on page 121 for details.

Unify after recognition
Do you want to Unify all key and time signatures based on the topmost staffline of each system?
Yes
No
Don't show this window again
OK
Cancel

FIGURE 1 - 10: Unify Key and Time After Recognition

NOTE: Both **System Report** and **Unify Key and Time** can be permanently disabled by selecting "***Don't show this window again.***"

e. Refer to page 33 for information on ENF playback, or to page 65 for information on editing of the ENF file.

When recognition is complete, the screen will split between an image pane and the ENF pane which displays a representation of what was recognized. As you scroll down and page, the image and ENF panes remain synchronized. An alternative to the "split screen" view is the "Zoom Window" view. See "Split-screen and Zoom Window Viewing" on page 83

1.5 Scanning Outside of SmartScore

An alternative to operating your scanner from inside SmartScore using TWAIN or a Mac plug-in is to scan in another application. You can use your scanner's software or a third-party imaging program like Photoshop® to scan and save images. Then **Recognize** the saved images in SmartScore. This is the least desirable choice. You will get more reliable results if you scan from within SmartScore.

If you are going to scan outside of SmartScore, use the following guidelines for successful music scanning:

- Place music in the scanner as straight as possible.

- Scan in Black & White (Line Art, 1 bit or OCR) not color or gray. Do not select “Black & White Document or Photo”.
- Scan between 300-400 dpi for average printed music.
- Save as TIFF file. *Uncompressed* will be about 1 MB per page. *Compressed* files are smaller. BMP will work too. Use a unique filename for each page... e.g. Page1.tif, Page2.tif, etc.

TIP: Optimum resolution is achieved when the distance between staff lines is about 20 pixels. Zoom into the image. Referring to the mouse position readout in the status bar, measure the distance between two lines in a stave (measure white space only).

NOTE: .If you are working with an HP scanner and choose to scan outside of SmartScore, here are some guides for obtaining optimum black and white images. Good luck. It may not be easy.

For HP scanner models 5100, 5200, and 5300 (PrecisionScan):

a. Choose Settings -> Preferences from the main program window.
b. Click the tab labeled “Auto Detect”.
c. Remove the check mark for “Detect regions on the page”.
d. Set Resolution to 300 to 350 dpi.

For HP scanner models 5370, 6200, 6300, and 7400 (PrecisionScan Pro):

a. Choose “Output Type” from the menu bar.
b. Select “Black and White”.
c. Set Resolution to 300 to 350 dpi.

For HP scanner models 3200, 3300, 4100, and 4200 (PrecisionScan LT) and for HP scanner models 2100, 2200, 3400, and 4300 (PrecisionScan LTX):

a. Choose Settings->Output Type menu option.
b. Select “Black and White”.
c. Set Resolution to 300 to 350 dpi.

1.6 Selecting Pre-scanned Files for Processing

NOTE: For detailed information on proper scanning procedures, see “Scanner settings” on page 9.

To create an ENF file from pre-scanned images of printed music,

a. Push the **Recognition** button on the Navigator or select **Recognize** under the **File** menu.

FIGURE 1 - 11: Recognition Button

A file-selection window “Begin Recognition” will open. Here you will list your prescanned files for recognition by selecting them, rearranging them, removing or adding them.

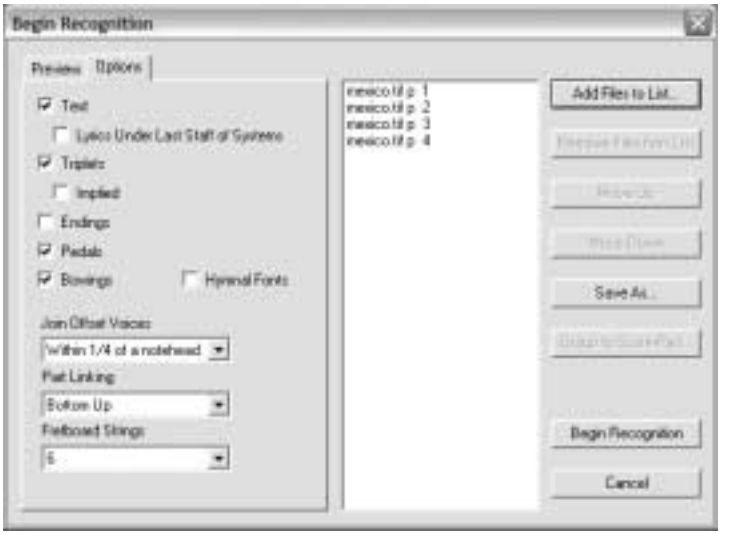


FIGURE 1 - 12: Recognition - Selected Files / Options / Preview

b. In the **Begin Recognition** window, push **Add Files to List**.

c. Browse to where you stored your scans. Click on an image file to select. If more than one page was scanned in the SmartScore scanning interface, the file will appear as a multi-page list.

NOTE: You may click on and drag image icon(s) to the selected files list of the Begin Recognition window. Some older Windows operating systems may not support drag-and-drop.

d. You might quickly preview pages prior to recognition to check that pages were scanned completely, that black areas do not obscure part of the music and that no page is severely skewed. Any of these issues will affect recognition results. Select the **Preview** tab and click on each page to view your pre-scanned pages.

e. Click on the **Options** tab to return to the File Selection and Options window. Options assists the recognizer to "hone in" on specific symbols and helps to remove any "false positives".

1.6.1 Rearranging the File List

If you scan more than 9 pages, you may notice "Page10" is listed before "Page2". This is because most operating systems list files according to the first character of the filename. Click on any page and hit **Move Up** or **Move Down** to reposition. Hitting **Remove Files from List** will cause that page to be skipped during Recognition.

1.6.2 Recombining multiple scan files (Creating new Page Groups for Recognition)

If one page of a scanned group is incorrectly scanned or is missing altogether from a multi-page image file (Page group), you may reselect individual pages to form a new page group.

a. Select (or drag) the original multi-page file inside the selected files list of the Begin Recognition window.

b. Highlight a page to remove and push **Remove Files from List**.

c. To add a replacement or additional page to the original page group, select or drag the page(s) to the selected files list.

d. Reorder pages as necessary.

NOTE: If pages were reordered, added to or deleted from the original image file, you will be able to re-save the newly listed pages.

*To **Save** the new list of grouped pages as a new image file,*

- Select all pages so they are highlighted and push Save As.

1.7 Scanning Part Scores (Score-Parts)

SmartScore allows you to process and combine scanned pages of solo parts, duets, trios or quartets and play them back simultaneously. They may also be recombined into a conductor's score.

TIP: If you are scanning in Score-parts for the purpose of joining solo parts into a conductor's score, it is recommended not to recognize text.

To scan and combine Score-parts into one ENF file,

a. Scan in all pages for each part. For easiest identification, give a unique name or number for pages belonging to one part, e.g. FluteP1, FluteP2, GuitarP1, GuitarP2, etc.

b. In the Begin Recognition window, arrange files in order of parts then pages: e.g. Part1/Page1, Part1/Page2, Part2/Page1, etc.

FIGURE 1 - 13: Grouping pages to Score-Parts

c. Highlight the first set of pages that make up the first Score-Part.

d. Push **Group to Score-Part.** In the Part Name window, give the selected pages belonging to a score-part a unique name.

e. When all pages are properly grouped to score-parts, push the **Begin Recognition** button.

SmartScore will internally organize score-parts following recognition. The ENF window will display pages for the first part followed by pages of the next part. Parts will play back simultaneously. For more information on creating conductor's scores, refer to "Creating a Conductor's Score from Part Scores" on page 97.

1.8 Recognition Accuracy

If recognition accuracy is not as good as what you expected, examine the image up close by zooming into the image pane of your ENF view. You may also open file in the Image Editor (**FIle** > **Open** > ***Files of Type*** = **Image**).

Determine the following by zooming close up:

- If close-up examination reveals the image to be speckled (salt-and-pepper), your scanner may have created a dithered image. (See page 4). To override automatic dithering, check the "Override Grey" box in the SmartScore interface. Normal thresholding level is +38. Decreasing will darken the image.
- If objects lack detail, rescan with Auto-Resolution = On or increase scanning resolution manually. Optimum distance between horizontal stafflines is 20 pixels. Use your mouse pointer and pixel coordinate readout in the Status Bar to measure.
- If objects such as note stems and staff lines are broken or lack thickness, rescan with increased darkness to fill in gaps.
- If the source document is poorly printed or is faded and weak, try locating a better print copy of the music.

NOTE: Recognition accuracy is directly related to the quality of the source document as well as the quality of the scanned image. Cheaper scanners, including Fax-Scan-Copy combos, are known to create poor images. Remember the old saw: "Garbage in / Garbage out". You may want to contact Musitek Tech Support for scanner recommendations.

If after examining the image and consulting the Troubleshooting chart, you are still unable to achieve good recognition results, we invite you to e-mail us your TIFF file(s) for detailed analysis by our technicians.

You can e-mail your files along with a short description of the problem to the following address:
tech@musitek.com

We will as reply soon as possible. Most likely, we will be able to locate the problem and offer a solution or recommendation.

1.8.1 Troubleshooting Scanning and Recognition

Table 1: Troubleshooting Guide

Problem	Probable Cause	Fix
Scanner does not operate.	Scanner drivers not installed properly.	Install TWAIN software and/or scanner Plug-in.
	Scanner not selected in SmartScore.	Ensure proper scanner driver is selected (**File > Scan Music**)
	Scanner not connected or not turned on.	Check cabling and power. Use scan test program.
Automatic resolution returns inconsistent resolution choices on the same page.	Music has irregular staff widths. Scanner may be distorting regions of page.	Re-scan with ***Resolution*** off. Re-scan in **your scanner's software. Select Black & White / 350 dpi / TIFF.**
	Scanner model used does not support variable DPI (1 pixel increments)	Re-scan with ***Resolution*** off. Manually set to value acceptable to scanner (300 to 600 dpi).
"1-bit image only" or "Cannot process grey images."	Scanner was set or forced by scanner software to scan in Grey, Color or Photo.	Re-scan in **SmartScore interface** with "**Override Grey**" = **ON** (Win).
"Recognition failed for this page."	Scanner set to screen resolution of 50-100 dpi.	Scan again accepting **Auto-resolution** settings for best results.
		Manually set resolution to 350 dpi and scan again.
	Scanner was set or forced by scanner software to scan in Grey or Color.	Re-scan in **SmartScore interface** with "**Override Grey**" = **ON** (Win)

Table 1: Troubleshooting Guide

Problem	Probable Cause	Fix
"Recognition failed for this page." (cont'd)	Scanner was set or forced by scanner software to scan in Grey or Color.	Rescan in **Your Scanner's interface:** 350 dpi / Black & White (Text / Line Art).
	Music not fully scanned or is severely skewed.	Rescan making sure all the music is selected. Scan music straight or use "**Deskew**" function.
	Image too large for selected resolution.	Re-scan ensuring "Auto Resolution" is ON.
Scanner hangs or crashes.	Driver conflict.	Ensure latest scanner drivers are installed.
		Scan outside of SmartScore using scanners software.
Poor recognition results.	Missing barlines due to light obscuring right margin or to right margin having been cut off during scanning.	Open image file in Image Editor. Use Select Tool to delete obscured regions and the Line Draw tool to restore right-hand barlines.
	Image too small for selected resolution.	Scan again accepting **Auto-resolution** settings for best results.
	Handwritten or non-standard notation. Poor print.	Scan well-printed, standard-sized sheet music.
	Poorly printed music.	Increase **Darkness** level. Find better original.
	Image not straight (skewed).	Open file in Image Editor (**File > Open > Image**). Use **Deskew** tool to straighten each page.

Table 1: Troubleshooting Guide

Problem	Probable Cause	Fix
	Image was dithered by scanner software.	See “Dithered Images” on page 4 for information.

1.9 Image Editor

- **Begin Recognition or Open in Image Editor**

Following the final scan of music pages, you may choose to “Begin Recognition” or “Open Image Editor”. This choice will stop the Recognition process and open the scanned images in the Image Editor.

NOTE: The image will not be saved until **File > Save As** is selected.

- **Load an image file**

To open an image file you have previously scanned,

a. Press the **Open** button on the Navigator or choose **Open** (**Ctrl + O** / **Cmnd + O** (Mac)) from the **File** menu.

b. Change ***Files of Type*** pull-down menu to **Image Files**.

c. Browse and highlight an image file from the listed saved files. Press **Open**.

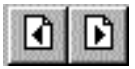
- **Image Information**

Select **View > Image Information** to display characteristics about the current scanned image including resolution, file type and page size.

- **Zoom**

To Zoom in and out click the Zoom Tool in the Main toolbar (**Ctrl + Q / Cmnd + Q** for *Mac*). Click inside the image will increase the scale of your view (Zoom In), while right-click (Option + click for *Mac)* will decrease the scale of your view (Zoom Out).

- **Page**



To view pages of an image file, use the paging buttons in the Main Toolbar or select **Next Page**/ **Previous Page** from the **View** menu.

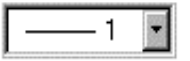
- **Image Toolbar**

Crop **RotateL** **Brush** **Select** **Color**
Reverse **RotateR** **Line** **Deskew** **Thickness**

FIGURE 1 - 14: Image Toolbar

1.9.1 Drawing Tools

- **Line / Brush Thickness**



To change the width of brush or line tool, select a new size from the Width menu in the Image Toolbar. Select from 1 to 50 pixels.

- **Color**

Toggle the Pen Color push button to choose the color used when drawing. Color changes from White to Black as you toggle the button. Or choose **Pen Color** from the **Edit** menu and choose Black or White.

- **Line Draw**

Some printed scores have weak or missing stafflines and/or brackets that can create problems during recognition and may result in missing or incorrectly bracketed systems. Sometimes, by accident, brackets and/or barlines are cut off during scanning. If this is the case, you can manually draw in staffline and brackets or enhance their thicknesses.

To draw in missing stafflines and brackets,

a. Select **Edit > Line** or choose **Line Draw** in the Image Toolbar.

b. Push the **Pen Color** push button in the Image Toolbar, if necessary, to choose Black Color.

c. In the **Width** pull-down selector, choose a fairly wide thickness (10-20 pixels).

d. Click and drag the mouse to draw a line along the missing or broken bracket along the left margin of the music.

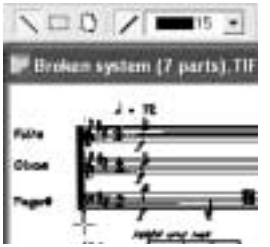


FIGURE 1 - 15: Using Line Draw tool to recreate missing bracket

e. When finished modifying the image. Select **File > Save As** and give it a name. You may then **Recognize** the file with corrections.

- **Paint Brush**

To draw free hand lines in your image file, select **Brush** from the **Edit** menu OR press the Brush button in the Image Toolbar. Choose a line width then click and drag to paint.

- **Crop**

To crop an image file (trimming unwanted portions of your image from outside a marked frame), go to the **Edit** menu and choose the **Selection** option OR press the **Select tool** button in the Image Toolbar.

FIGURE 1 - 16: Selecting Region for Cropping

With your mouse, drag a box around the area you wish to keep. If you want to extend the cropping region outside of the display, keep dragging; the page will scroll as you drag up or down.

To adjust the marked bounded area, move your mouse pointer over a boundary line, click and drag the boundary to a new position.

Select **Crop** from the **Edit** menu OR press the Crop button in the Image Toolbar. The resulting image will be reduced to the area inside the bounded frame. Remember to **Save** when done.

1.9.2 Page Tools

- **Correcting Skew**

Page through each scanned image and check for relative straightness of each image page. If a page appears tilted or *skewed*, recognition accuracy will be compromised. The Deskew tool will rotate the image slightly to correct skewed pages and will optimize recognition accuracy.

Press the **Deskew** button in the Image Toolbar or select **Deskew** from the **Edit** menu.

FIGURE 1 - 17: Manual Skew Correction

Position the cursor over a staffline. Starting from the left side, click and drag the mouse along the length of the staffline. A red “skew angle” line will display as you drag the mouse. When you are certain the red “skew angle” line parallels the staffline, let go. The page will automatically straighten. Repeat for each page. Remember to **Save** when done.

NOTE: If the page becomes incorrectly rotated, undo with **Ctrl + z / Cmnd + z** for *Mac* (or select **Edit > Undo**).

- **Rotate**

To rotate an image file (for landscape formatted scores or upside down scans), go to the **Edit** menu and highlight **Rotate** OR press one of the Rotate buttons in the Image Toolbar.

- Rotate the image Left (90 degree rotation).
- Rotate the image Right (90 degree rotation).

- Select **Edit > Rotate > Any** to rotate at angles other than 90 degrees.

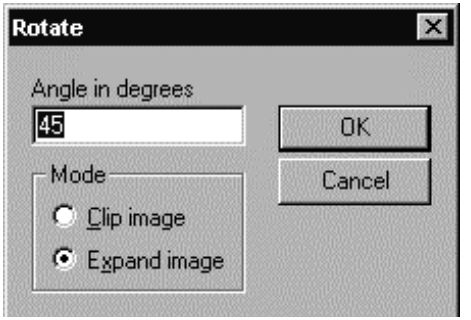


FIGURE 1 - 18: Image Rotation

- Choose **Clip Image** mode to maintain the original page size and orientation of the image file.

NOTE: Be careful that none of the image is clipped with this option. If so, choose **Edit > Undo (Ctrl + z / Cmnd + z** for *Mac*).

- Choose **Expand Image** mode to increase the page size, if necessary, to include the entire image.
- Remember to Save when done.

- **Invert**

If the image you open in SmartScore is white-on-black (instead of the normal black-on-white), then you should reverse the image output in your scanning software. SmartScore defaults to 0=white polarity.

If your scanned image appears white on black, choose **Edit > Invert**.

1.9.3 Cut / Copy and Paste

- **Cut**

To Cut an area from the scanned image, use the Select tool and drag a box with the mouse. Select **Edit** > **Cut** (**Ctrl + X** (Win) / **Cmnd + X** (Mac)). Cut region will be stored in the clipboard's memory.

- **Copy**

To Copy an area without removing it from the image, use the Select tool and drag a box with the mouse. Select **Edit** > **Copy** (**Ctrl + C** (Win) / **Cmnd + C** (Mac)). Copied area will be stored in the clipboard.

- **Paste**

To Paste the contents of the clipboard into an image file, select **Edit** > **Paste** (**Ctrl + V / Cmnd + V** (Mac)). The cut or copied section will drop into the image. With the mouse, drag the fragment anywhere within the image and release the left mouse button. To fix the fragment in place, click outside the pasted fragment.

- **Transparent Background**

To Cut or Copy the marked off area of an image file with a transparent background, highlight **Selection Mode** from the **Edit** menu and select **Transparent**.

NOTE: After modifying pages in the Image Editor, remember to **Save** the modified image file.

Chapter 2 ENF Playback

2.1 Getting Started

2.1.1 Quick Play

To play back an open ENF file using the spacebar,

a. Press the spacebar to start playback. Press again to pause. Press again to resume play.

b. Press the comma key (“**,**”) to rewind to start point.

NOTE: Spacebar always refreshes playback according to the current ENF display. If you wish to keep changes made in MIDI view, use **PLAY** button in **Mini-Console** or **Playback Console (Ctrl + 9**). See Section 2.5.12 on page 47 and 7.1.1 on page 128 for more details on Refresh MIDI.

2.1.2 Mini-Console

The Mini-Console is free-floating if you grab and move it from its docking position next to Text and Controllers toolbar. It plays, rewinds and stops playback.

No MIDI Recording

The *Record* button will launch a new MIDI recording session to record additional tracks (see “MIDI Recording” on page 153). The “spring-loaded” slider will speed up or slow down playback at variable speeds and then snap back to the default tempo when let go.

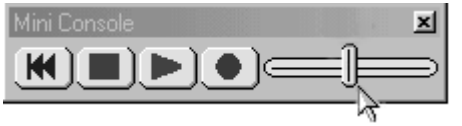


FIGURE 2 - 1: Mini-Console

2.1.3 Lock to Time Signature

Playback of the ENF file can be controlled in one of two ways: “Lock to Time Signature” or “play whatever is there”. Selecting **Lock to Time Signature** will force playback to progress with exactly the same number of beats / measure as indicated by active Time Signature. This is the default.

To play back each measure exactly as written in the ENF display,

Uncheck **Playback > Lock to Time Signature.** Playback will then sound every measure exactly as notated. If ENF is unedited, you will probably hear mistakes played back as longer measures or interrupted passages.

2.1.4 MIDI Devices

It is necessary to identify the MIDI device attached to your system in order for SmartScore to play through it. Selecting the MIDI device is similar on both Windows® and Macintosh®. One nice advantage of the Mac® Operating System 8.0 and better is that it includes QuickTime™ Musical Instruments *soft synthesizer.* This allows you to select and play General MIDI (GM) sounds without attaching an external synthesizer or internal soundcard to your computer.

To set the MIDI input and output devices,

a. Select **MIDI Devices** from the **Playback** menu. The MIDI Devices window will open

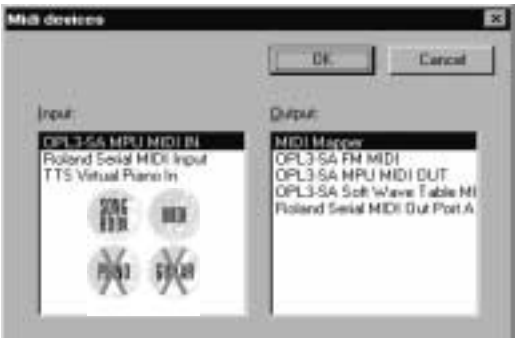


FIGURE 2 - 2: Playback > MIDI Devices

b. Click on the **MIDI Output** device you wish to use for MIDI playback. The MIDI device window will display all installed MIDI device drivers.

c. If you intend to record in SmartScore, select the desired MIDI recording device/interface in **Input** window.

NOTE: If the desired device is not listed in the MIDI Devices window make sure your MIDI device driver has been properly installed.

d. Press **OK** to set the selected MIDI devices as your MIDI sources.

NOTE: Some MIDI programs may prevent playback if opened before SmartScore. By closing the first MIDI program, the output port will be released.

2.1.5 OMS Setup (Mac Classic Only)

NOTE: To work properly, OMS requires AppleTalk to be turned OFF.

If you intend to record MIDI to your Mac or if you use an external MIDI device/interface, make sure you have installed OMS from the SmartScore installer. Choose **OMS > OMS Setup** to run the setup routine. Choose **Easy OMS Setup** to begin. Leave "**Run MIDI in Background**" unchecked. If you have an external MIDI device attached to either your printer or modem parallel port, select the right port in the first window. Following MIDI Setup, you should see all available MIDI devices in the display screen. These same devices will appear in the **MIDI Device** window in SmartScore and in **OMS Studio Setup** when selected.

NOTE: For USB connections, select both **Printer** and **Modem** options.

Select **Playback** > **QT Internal Playback** if you want to play back through *QuickTime Musical Instruments* (QuickTime 3.0 or better only).

NOTE: If no sound is heard after pressing the space bar, select "Refresh MIDI" from the **Playback** menu then reselect **QT Internal Playback** from the **Playback** menu. Check speaker volume.

2.2 Error Check

It's a good idea to select **Edit > Error Check** (**Ctrl + E** for Win / **Cmnd + E** for *Mac)* to quickly identify problem measures before moving on to more editing activities. See "Error Check" on page 56 for details on this option.

2.3 Playback Console

In the Playback Console, you can make changes to MIDI Instruments, tempo, transposition, muting, soloing and pan settings.

To open the Playback Console,

- Press the speaker button in the SmartScore Toolbar. Or hold down **Ctrl + 9** (Win) / **Cmnd + 9** (Mac) or select **Playback > Console**.

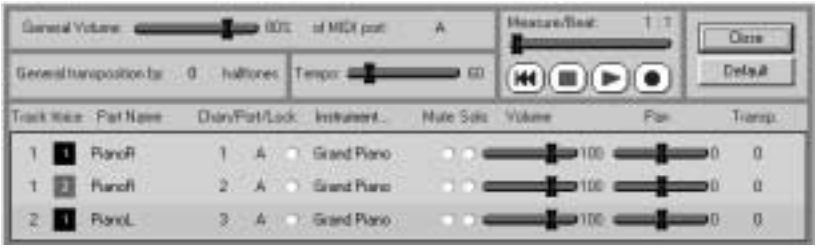

Close
Default
Track Voice Part Name Chan/Port/Lock Instrument Mute Solo Volume Pan Transp
1 1 PianoR 1 A Grand Piano 100 0 0
1 2 PianoR 2 A Grand Piano 100 0 0
2 1 PianoL 3 A Grand Piano 100 0 0

FIGURE 2 - 3: Playback Console

The first column, **Track**, lists the MIDI track assigned. The second column, **Ch/V** lists the MIDI channel number within a colored box representing one of 4 possible voices (black, red, green and blue).

The Playback Console will display just tracks (parts in black only) when **Options > Color Mode** = **Part**. If **Options > Color Mode** = **Voice** is selected, all voices (in colored boxes) will be displayed. Refer to "Working with Voices and Colors" on page 103 for more information on controlling voices.

- **Play** button plays the current ENF file. Once playback has begun, the **Play** button changes to Pause.

- **Pause** suspends playback. **Play** resumes where pause was selected.

- **Stop** button stops playback of the ENF file.

- **Rewind** button resets playback to the start of the playback range.

2.3.1 Adjustable Playback Console settings

- Scroll to any beat in the score using the Measure / Beat slider.
- Adjust the overall or individual volumes of playback with the **Volume** sliders.
- Use the **Port** pull-down menus to select new MIDI output device.
- Adjust tempo with the **Tempo** slider.
- Change MIDI **Instrument** or **Channel (Chan)** of any voice / part.
- **Transpose** the file globally or by individual voices / parts.

NOTE: **Transposition** in the Playback Console is for playback only. To transpose notation, see “Transposition” on page 93.

- **Mute** a voice while all others continue to play or **Solo** a single voice.
- Use **Pan** to create a stereo image.

2.4 Working with Voices

SmartScore treats contrapuntal voices (multiple voicelines occurring within a staff) as the fundamental component in the structure of music. In a score’s hierarchy, voicelines are treated as the “primary building block”. You can visualize the ENF hierarchy by going to **Score Structure** in the **Edit** menu. (See “Score Structure” on page 97 for more details.)

All scores contain one or more voices in any given measure; occasionally three or four. The ENF editor provides extremely useful voice-based functions including the ability to extract voices to new documents, to split two-note chords into separate voices and to control individual voice playback such as assigning unique MIDI instruments, muting and soloing each voiceline.

2.4.1 Color Mode > Voice

To view contrapuntal voices as separate colors in an ENF file, push the **Voice Color** button in the SmartScore toolbar or go to the **Options** menu and select **Color Mode > Voice**. Each ENF Part (each staffline of the score) can contain a maximum of 4 voices (represented by 4 colors). We recommend that you normally view your ENF files with voice color on. An alternative note-coloring method, useful in orchestral scores, is to view each Part (each staffline) with a unique color. For more about coloring parts and voices, see "Working with Voices and Colors" on page 103.

TIP: When **Color Mode = Voice**, the number of MIDI channels will be increased to equal the total number of voices in the score. When **Color Mode = Part**, the number of channels equals number of parts; far less than if **Color Mode = Voice**. Open Playback Console (**Ctrl + 9 / Cmnd + 9**) in either mode to view the difference.

2.4.2 Assigning instruments to voices

Assigning a unique MIDI instrument to each voiceline adds richness and tonal variety while allowing the listener to distinguish one contrapuntal voice from all others during playback. There are two areas where you can change MIDI instrument assignments for voices: inside the Playback Console and inside the System Manager.

To change an instrument assignment of a voice in the Playback Console,

a. Set **Options > Color Mode** to **Voice**. Open the Playback Console (**Ctrl +9 / Cmnd + 9**) or select **Playback > Console**.

FIGURE 2 - 4: Changing MIDI instrument of a voice in Playback Console

The **Track** column displays each ENF Part as a MIDI track number. To the right, the **Ch/V** column displays the voice number of the part/track inside a colored box corresponding to the color for that voice.

b. In the **Instrument** column, click to select a new MIDI instrument.

To change an instrument assignment of a voice in the System Manager,

a. Open the System Manager (**Ctrl +M / Cmnd + M**) or select **System Manager** from **Edit** menu. All staves are displayed in horizontal rows as “Parts”. Voices are arranged in columns above each part (1 thru 4).

b. Find the voice within the part you want to change. Click the pull down menu in MIDI instrument assigned to that part and voice. Select an alternative instrument from the pull-down menu for that voice. You will hear each voice stand out from other voices within the same part/staffline when played back; provided you chose instruments with enough difference in their respective timbres.

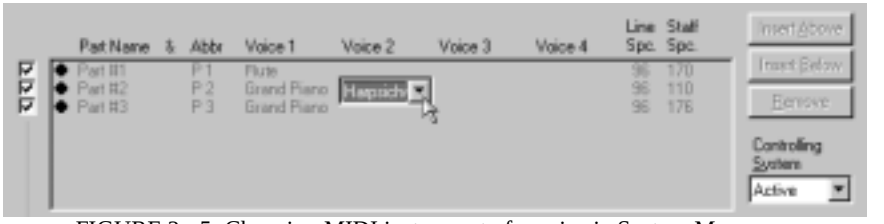


FIGURE 2 - 5: Changing MIDI instrument of a voice in System Manager

2.4.3 Vertical Alignment and offset voices

In printed music, it is common for notes belonging to different voices to appear horizontally offset from one another. Such offset notes are clearly meant to sound simultaneously even if they are not aligned vertically. Such notes belong to different voices, may have opposite stem directions and will appear horizontally offset. See FIGURE 2 - 6: on page 40. Prior to recognition, you will have the option of varying the distance that SmartScore uses to determine whether to join these offset notes to one vertical event or not. See “Join Offset Voices” on page 15. for more details.

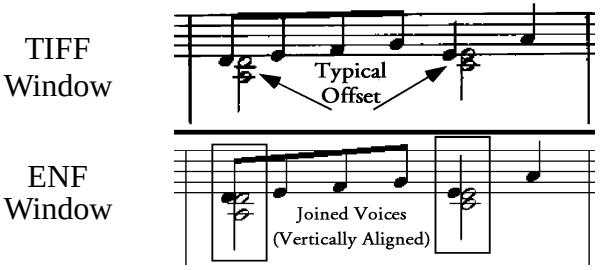


FIGURE 2 - 6: Vertical Alignment

TIP: In **Edit Shapes** environment, vertically joined events are "glued" and will move together when nudged. To verify whether or not offset voices are actually joined to the same vertical event, press the **Edit Shapes** button in the Main Toolbar and nudge one of the notes horizontally. For more info, see "Edit Shapes" on page 60.

2.4.4 Correcting Vertical Alignment

The best way to test if offset voices are not vertically aligned is to listen to the playback (uncheck Lock to Time Signature first). If you find offset notes that should, but don't play together, you can join offset voices manually or they can be joined with a global "Join Voices" command.

To vertically align offset voices (manual method),

a. Use the Select tool ("**O**" key) and highlight a group of horizontally offset notes or rests (See FIGURE 2 - 6:)

b. Press the "**Y**" key to group the selected, offset notes into a single vertical event. Selected voices may move or jump slightly closer.

To globally join offset voices (automatic method),

NOTE: The following procedure is "global" and may result in joining voices which do not belong to the same vertical event. Use caution when employing this procedure. Less is better.

a. Press the "**J**" key or select **Join Voices** from the **Edit** menu.

FIGURE 2 - 7: Join Voices

b. Notes and rests belonging to different voices will be joined to the same vertical event based on the distance selected (1 through 20). These units are arbitrary. The default is 6. It is recommended not to change the distances more than 2 or 3 units at a time.

NOTE: Be careful not to overdo it. You may inadvertently join voices that ought to be syncopated. Always playback and listen after joining voices. If you wind up with sewing machine or head-banging rhythms...or worse, you can always UNDO (**Ctrl + Z** *Win* / **Cmnd + Z** *Mac*).

c. Press **OK** and hit the spacebar to audition. The occasional note that may have been incorrectly joined to its neighbor can easily be deleted and replaced.

2.4.5 Options > Align Joined Voices

Offset voices that are joined will have simultaneous "start" times for playback. By default, joined notes and rests become vertically aligned. Sometimes, especially in cases where notes are particularly dense, you may not want horizontal movement. To keep joined notes and rests off-set, go to **Options > Align Joined Voices** and remove the check mark.

2.5 Altering Playback

2.5.1 Lock to Time Signature

SmartScore allows for two kinds of playback: "***Play what's there***" or **Lock to Time Signature**. With **Playback -> Lock to Time Signature** check marked, every measure plays back with the exact number of beats indicated in the default time signature. If the ENF file contains editing errors, this may result in dropped notes during playback or in the case of pickup measures and "split" measures, it will cause a pause

to be heard. With Lock to Time Signature turned off, whatever is written in each measure will be played back regardless of the current time signature. If the ENF file contains errors, this option may result in irregular meter, lengthened or shortened measures. Either option is useful under certain circumstances.

- For smoothest playback effects, leave **Lock to Time Signature** on.
- For "aural editing" to uncover editing errors, turn **Lock to Time Signature** off.
- For pickup measures or measures split between lines, turn **Lock to Time Signature** off. Playback will ignore current time signature. Make sure rhythm values are consistent in all parts.

Pickup Measure (typical) "Split" Measure (typical)

FIGURE 2 - 8: Pickup and split measures

NOTE: **Lock to Time Signature** (***on*** or ***off***) will reflect its actual representation in MIDI. When an unedited ENF file is saved to MIDI with ***Lock to Time Signature*** unchecked, the resulting MIDI file may produce measures with various meters. When checked, all measures will have constant meters.

2.5.2 Tempo

Default tempo speed for all time signatures is 120 beats per minute (120 bpm) except for music which begins in 2/4 time (60 bpm).

- **Default tempo**

If you wish to alter default playback tempo for the open file, open **Edit > Tempo** and set a new default speed. This can also be done in the **Playback Console**.

FIGURE 2 - 9: Set global Tempo

- **Change of tempo**

Changes of tempo can be accomplished by inserting metronome markings from the **Tempo** palette at the point where you wish tempo to change. Another method is to alter the ENF Tempo graphical controller. See “ENF Tempo Controller” on page 44.

TIP: To smooth out unwanted changes in playback tempo, go to **Playback > Graphical Controller > Normalize Tempo** and choose from 20% to 80% to reduce the amount of change in tempo throughout the score. **Reset Tempo** will return all tempo controller changes to default.

2.5.3 Graphical controllers

With the Velocity graphical controller you can vary note velocities of each note cluster quickly and smoothly. With the Tempo controller, you can “draw in” tempo variations smoothly over time. Controllers can be accessed either in the ENF *Text and Controllers* toolbar or below the Piano Roll window in MIDI view.

FIGURE 2 - 10: ENF Text and Controllers Toolbar

2.5.4 ENF Velocity Controller

In ENF score view, push the "**V**" button to activate Velocity controller. Click and drag your mouse up or down along the vertical bars which represent each note's velocity. The higher the bar, the more the velocity.

FIGURE 2 - 11: ENF Velocity Controller

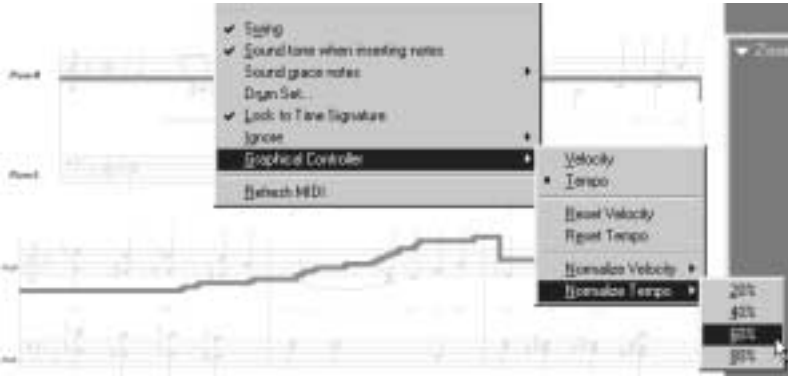
2.5.5 ENF Tempo Controller

Push the "**T**" button to active tempo controller. The horizontal line in the *topmost staff* represents default tempo. To vary tempo, click and drag your mouse up or down. The last tempo point will be fixed until changed.

FIGURE 2 - 12: ENF Tempo Controller

2.5.6 Normalize controllers

Playback may result in greater-than-desired changes after altering either tempo or velocity controllers. If so, you may globally reduce the effects of either controller by applying ***normalizing***.



Normalize Tempo controller (Before)

Tempo controller after normalizing by 80%

FIGURE 2 - 13: Normalizing Tempo

To reduce effects of either Tempo or Velocity graphical controllers

a. Choose **Playback > Graphical Controller**

b. Select either **Normalize Tempo** or **Normalize Velocity**.

c. Choose amount of reduction desired: 20% / 40% / 60% or 80%. Controller display and playback will change accordingly.

d. Choosing **Reset** removes all controller changes and resets the default settings.

NOTE: Additional Tempo markings inserted into ENF will still take affect. The end result is an averaging of tempo values.

2.5.7 Controller background views

- Invisible

Graphical controllers are not visible in this view. It is the default view.

- Line

In Line view, controller is displayed in the foreground with notation displayed in grey in the background.

- Filled

In Filled view, notation is obscured entirely with controller in foreground.

- Background

In Background view, notation is displayed in the foreground and the graphical controller appears in grey in the background.

2.5.8 Set Play Range

You can have playback begin on any measure in the ENF file or you can specify a range of measures for playback.

To set a playback start point or to select a range for playback,

a. Select **Playback -> Set Play Range** and click the **Play Range** radio button.

b. In the **From** field, choose a starting measure. To establish a range for playback, select an end point in the **To** pull-down box.

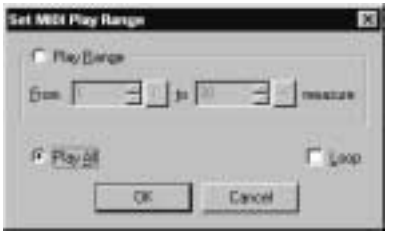


FIGURE 2 - 14: Set Playback Range

c. To repeat playback over the range, check the **Loop** box.

2.5.9 Dynamics

You can use any of the tools in the Dynamics palette to alter playback velocities. Inserting dynamic, crescendo / decrescendo markings or hairpins will alter the velocity of associated notes in the ***active staffline*** only. See “To Insert a Dynamic marking,” on page 110 for details on inserting dynamics.

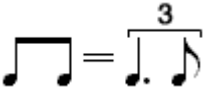
To apply dynamics and/or dynamic markings to more than one staff, enter the dynamic in each active staff that you wish to apply the effect. If you do not wish to have so many dynamics visible in every staffline, you may enter symbols in the ***Hidden Symbols*** mode. For more details, see “Hidden Symbols” on page 108.

2.5.10 Articulations

Numerous note articulations including slurs, trills, turns, mordents, staccatos, tenutos, accents, arpeggios, glissandos and tremolos can be applied from the Articulations palette. For more information, see “Articulations and Trills” on page 112.

2.5.11 Swing

This very *cool* feature applies standard swing rhythm to straight 8th and 16th notes notated in beamed groups. If the header in the original music says “swing” or gives a similar marking, SmartScore will modify playback and the underlying MIDI representation as follows:



2.5.12 Refresh MIDI

ENF and MIDI Views are tightly integrated. Occasionally, data in one view may conflict with data in another resulting in playback that is not anticipated. If this happens, select **MIDI Refresh** from the **Playback** menu. **MIDI Refresh** will update playback based only on the ENF View. Any changes made in MDI view including tracks added during MIDI recording (Step Time or Real Time) will be lost. You will be given a chance to save the “pre-refresh” playback as a MIDI file before updating based on ENF display. For more information about MIDI Refresh, refer to “Updating and refreshing playback and display” on page 128.

2.6 Repeats and Endings

Repeat signs (including *Repeat Last Measure*) and ending markings (including *Coda*s and *Segno*s) from the “Barlines and Repeats” palette will alter playback accordingly. Using the “*n*” *repeat barline* will allow

you to set beginning and ending measures of a multiple ending. For more details on repeats, multiple endings and *Coda*s and *Segno*s, see “Repeats and Multiple Endings” on page 118.

2.7 Instrument Templates

Instrument Templates makes up the “pool” from which instruments are assigned to stafflines in *System Manager*. To open Instrument Templates, select **Edit > Instrument Templates** or hit **Ctrl + F** *Win* **(Cmnd + F** *Mac***)**. Most common musical instruments are listed in the **Names** column. Abbreviations, MIDI instruments and transposed playback have been preassigned, but may be changed.

FIGURE 2 - 15: Instrument Templates

Part Names in System Manager are directly linked to instrument ***Names*** in Instrument Templates. When a ***Part Name*** is selected in the System Manager, all playback parameters are derived from Instrument Templates.

2.7.1 Transposed instruments

Since transposed instruments do not actually play the pitches notated in the score, to play them back in tune with the other non-transposed instruments, they must have their playback adjusted up or down by certain intervals. This “playback transposition” is already preset in Instrument Templates for most transposed instruments.

2.7.2 Adding instruments

You can add new instruments with unique names and playback parameters as well as change existing names and parameters in any template. For more information on Instrument Templates, turn to “Instrument Templates” on page 101. For more information on the System Manager, turn to “System Manager” on page 97.

2.8 Add drum tracks

Adding an automatic drum track will add more pizazz to the mix.

Push the “Drum Pattern” button in the SmartScore toolbar to select an appropriate pattern for your piece. For more information on adding or creating drum tracks, go to "Automatic Drum Patterns", Section 5.2, on page 78.

2.9 Karaoke View

Feel like singing out loud? Hey, you only live once...

To view moving lyrics with familiar bouncing ball,

a. Press the Karaoke View button in the floating **Navigator** palette.

b. Use the floating mini-console transport buttons to control playback.

c. Open the **Playback Console (Ctrl + 9 / Cmnd + 9** for *Mac***)** to adjust tempo and change instrument assignments for parts and voices.

Chapter 3 Editing Notes and Rests

This section is intended to give you a brief overview of ENF editor functions. Turn to Section Chapter 6, "Detailed ENF Editing" on page 83 for more.

3.1 Navigating Inside an ENF Document

3.1.1 Zoom

To Zoom in and out,

- Click the Zoom Tool in the Main Toolbar. **Ctrl + Q** (**Cmnd + Q** for *Mac*) will toggle between In and Out.
- Click will increase the scale of your view (Zoom In), while right-click (**option + click** for *Mac*) will decrease the scale of your view (Zoom Out).

NOTE: An alternative to the “split screen” view is the “Zoom Window” view. See “Split-screen and Zoom Window Viewing” on page 83 for more details.

3.1.2 Paging

TIP: It is possible to view several pages at once with either **File > Print Preview** or the **View > True Scrolling** function. See page 178, "View -> True Scrolling".

To page forward or backward in an ENF document,

- Use the paging buttons located in the Main Toolbar or push the “Next page” / “Previous page” arrows at the lower right-hand corner of the SmartScore window.

3.1.3 Status Bar

The status bar in the lower right corner of the SmartScore window contains information about the current page being viewed such as Part Number, Page Number, Cursor Position, Page Size and Zoom View. Clicking inside any of these fields will open a control window: **Go To** (Part, Page, Cursor), **Page Setup** (Page Size) or **Zoom Level** (Zoom).

3.1.4 Active staffline

In SmartScore, only one staff is capable of being edited at a time. A staff becomes activated when the mouse pointer crosses into it. If **Show Active Staff** is checked, all other staves display as greyed out (inactive).

You may display the active staff highlighted or show all staves in black.

To allow every staff to display in color or in black,

- Go to the **View** menu and uncheck **Show Active Staff.**

For additional information on navigating inside an ENF document, go to“More ENF navigating” on page 83.

3.2 Preliminary Cleanup

Many new symbols are recognized in SmartScore 3. In order to limit “false positives”, we’ve added options that selectively narrow the set of objects to be recognized. (See “Recognition Options” on page 12.). It may be necessary to remove incorrectly recognized objects in any case. We recommend this simple “sweep” method following recognition.

a. Hit the “**O**” key to activate the Select tool.
b. Click and drag the Select Tool to highlight a group of “false positives” that may be found between staff lines.
c. Pay attention to any false tempo and dynamic markings (e.g. ***f, ff***, etc.) but at the same time, be sure not to select valid markings, notes, chord symbols or other objects you don’t wish to remove.
d. Hit the “Delete” key to remove highlighted objects.
e. Repeat between subsequent staff lines and on remaining pages.
f. See “Inserting or Deleting Multiple Articulations” on page 114.

3.3 ENF Editing Modes

3.3.1 Insert and Change modes

NOTE: It is highly recommended that you become familiar with SmartScore's hand position for editing. You will find editing fast and easy once you begin working with this two-handed method:

FIGURE 3 - 1: Left and Right Hand Positions for Editing

Press the "**C**" key of your computer keyboard to toggle between the **Insert** and **Change** modes. Notice how this changes the appearance of the cursor. In the **Insert** mode, the cursor becomes the chosen object. In the **Change** mode, the cursor becomes an arrow with the chosen object next to it. The Change and Insert buttons in the toolbar alternate as well.

- **Insert** mode allows you to insert objects when clicking anywhere in the active staffline.

- **Change** mode allows you to change existing objects to the selected notation object.

You can select any editing mode from the SmartScore Toolbar.

FIGURE 3 - 2: SmartScore Toolbar with *Insert mode* selected

TIP: In areas that are particularly crowded with objects, nudge notes horizontally in **Edit Shapes** to make room. See 3.5 on page 60.

3.3.2 Delete by Group / Delete Any

Press the "**X**" key of your computer keyboard to toggle between the **Delete by Group** and **Delete Any** modes.

In the **Delete by Group** mode, the cursor becomes an arrow with the selected object type in grey. In the **Delete Any** mode the cursor becomes an arrow with an "**X**" next to it.

- **Delete by Group** mode deletes any object that is listed in the active Tool Palette group. Objects from other groups will not be deleted.

- **Delete Any** mode removes any notation object that is clicked with the mouse. NOTE: This action will remove an entire chord. To remove a single note from a chord, hit the "**X**" then "**Z**" key.

3.3.3 Chords (Cluster Tool)

To attach note to existing note stem (Chord-building) Tool,

a. Press the Cluster Tool button ("**Z" key**) in the "Notes" palette.

b. While in the **Insert** mode, click above or below an existing note to **Insert** a new note along the stem. The new note inherits the same duration of the original note.

To Delete a single note from a chord cluster,

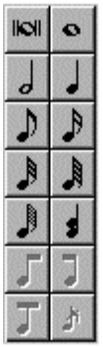
- Press the "**X**" key with the Cluster Tool active and click on any note to remove it from the chord. **Delete Any** will erase the entire chord.

3.4 General Note Editing

TIP: The "**F1**" key will reset all windows and palettes to their default "startup" positions. Use when things get messy.

3.4.1 Undo

To undo any edit action, hold the **Ctrl** and "**Z**" keys down (**Cmnd** + **Z** for *Mac)*. Repeat again to undo a previous action.



3.4.2 Tool Palettes (F2-F9 keys)

All notation objects used in SmartScore can be selected from one of several Tool Palettes.

NOTE: For full description of all SmartScore tool palettes, turn to "Tool Palettes", Section 9.1, on page 160.

To quickly select any alternative Tool Palette, **right-click** (**Ctrl + click** *for Mac*) on any open Tool Palette. All possible Tool Palettes become available for selection. Notice that the "active" palette is replaced by the newly-selected palette when *Recycle* is the palette mode.

TIP: *Quick-Select* (**Ctrl + Click**) is probably the quickest way to select an object to ***Insert*** or ***Change***. Hold down the **Ctrl** button and click on any object in the active staff line. The cursor will become that object and also inherit its attributes.

TIP: Notes can be selected from number keys. Use SHIFT for rests and **Ctrl + 2** and **3** for accidentals.

3.4.3 Grace Notes

While in **Insert** mode, select a rhythmic value and press the grace note button in the "Notes" palette. Click before any note in the active staff to insert a grace note. ENF playback will insert the grace note and truncate the duration of either the following or the previous note.

To control how grace notes play back and are written to the resulting MIDI file, go to ***Playback > Sound Grace Notes,***

- On the Beat (Accaciatura) - Plays on the beat and shortens the duration of the following note.
- Before the Beat - Plays before the beat and shortens the duration of the preceding note.

3.4.4 Select tool ("O" key)

Use the Select tool to highlight one or more objects for selected editing functions such as delete, vertically align multi-voice notes, split voices, flip stem directions and copy/paste. The "**O**" key activates this tool. Its button is found in the SmartScore toolbar.

TIP: Use the **Select tool** + **Delete** key to remove any object other than lyrics and barlines. It is especially useful for removing spurious or unwanted text or multiple objects that do not delete easily with the "**X**" key.

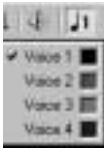
3.4.5 Voice color

Contrapuntal voices can be viewed in color as well as in black. To view contrapuntal voices as separate colors in an ENF file, push the **Voice Visibility** button in the SmartScore toolbar or go to the **Options** menu and select **Color Mode > Voice**. The initial default is **Options > Color Mode > Part > Black**. Voice color can be turned off or on anytime by clicking the **Voice Visibility** button.

Voice color is automatically determined based on several factors (number of voices, stem direction, vertical alignment, etc.) You can override voice colors manually. Changing voice color also changes its voice assignment and, possibly, changes voice assignments of other notes in a given measure.

NOTE: DO NOT override voice colors until a measure is entirely edited. Unusual color combinations usually correct themeselves.

To override automatic voice color assignment (and change voice number),



a. Select desired voice number (and color) from **Voice Color** combo button in the SmartScore Toolbar.

b. Locate the note or rest in a voice you wish to change and click on it.

c. Color and voice assignment will update as will any other voices within the same measure, e.g. other notes in the same vertical event.

For more about part and voice colors, see "Working with Voices and Colors" on page 103. See also "Vertical Alignment and offset voices" on page 39.

3.4.6 Error Check

Error Check will search each measure looking for voicelines that are either incomplete or have total durations in excess of the default time signature.

Error Check
Measure: 10
Voice: 1
Incomplete measure in one or more voicelines. Check original for missing notes and/or rests. Recheck time signature.
Ignore
Quit Check

FIGURE 3 - 3: Error Check window

To check for errors based on total voice durations,

a. Press **Ctrl +E** Win / **Cmnd** + **E** *Mac.* Or select **Edit > Error Check.** The first measure found with a discrepancy will highlight in grey. The Error Check window will suggest whether there are too many or too few note values in a particular voice in a given measure.

b. Click into the ENF page and correct the indicated voiceline.

NOTE: It may be necessary to click twice in the ENF display to change "cursor focus" from the Error Check window to ENF display.

c. Select **Resume** to continue. Click back into ENF to regain "focus".

NOTE: Very often publishers will leave one voiceline incomplete when there are two or more voices within a measure (to avoid cluttering a measure with rests). SmartScore may successfully cope with such a situation *provided* voices are vertically aligned.

d. Choose **Ignore** to skip the indicated voiceline discrepancy or **Quit**.

3.4.7 Pitch shift

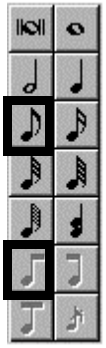
To change the pitch of any note,

- Hold down the "**Shift"** key, click and drag a notehead up or down.

NOTE: To move objects horizontally, activate Edit Shapes from the Text and Controllers Toolbar. See “Edit Shapes” on page 60.

3.4.8 Editing beamed notes

- **Inserting and deleting beamed notes**



To create beam groups, first select a flagged note value and the “right beam” option from the Notes palette. Toggle the “**C**” key to enter **Insert** mode. Multiple clicks inside a staff will form beamed groups of two notes. Deleting an end beam note will cause adjacent beamed groups to connect. To join multiple 2-beam groups into larger groups, use the Select tool (“**O**” key) and then hit the “**B**” key. All selected beam groups will reform.

- **Inserting an “inside” beamed note**

To insert an inside beamed note, be sure you are in the **Insert** mode. Select the proper note value from the Note palette and then push the “Middle Beam” button. Position the cursor inside a beam and click.

- **Forming flagged notes into beamed notes**

To transform a group of flagged notes into a beamed group, use the Select tool (“**O**” key) to highlight any group of flagged notes adjacent to each other. Hit the **“B”** key to join the notes into a beamed group.

- **Forming a beamed group from mixed flagged and beamed notes**

Any number of flagged or beamed notes may be reformed into a new multiple group by first selecting a group of adjacent flagged or beamed notes using the Select tool. Then hitting the “**B**” key.

3.4.9 Stem direction

The default stem direction of an inserted note is determined by its vertical position on the staff. When your cursor crosses the middle staffline, the direction of the stem automatically switches. Default stem directions: Up above the middle staff line; Down below the middle staff line.

To reverse the default stem direction while inserting a note,

- With a stemmed note selected, toggle the "**S**" key to change its default stem direction. Another method is to insert the note with a right-click (**option + click** *for Mac*). This will reverse the default stem direction of the note as it is displayed by the cursor.

To change the stem direction of an existing note,

a. Toggle the "**C**" key to activate the **Change** mode.

b. Right-click (**option + click** *for Mac*) on any given notehead. The stem direction will change.

3.4.10 Dots of Prolongation

- Select the "**D**" key, dot or double dot from the "Notes" or "Rests" palette. Click on any notehead to attach a dot of prolongation.
- To **Delete** a dot of prolongation, press the "**D**" key again and click on the notehead.

3.4.11 Tuplets and Slurs (Legatos)

While in the **Insert** mode, select a triplet ("**T" key**) from the "Rhythmic Groups" palette or select Legato from the "Articulations" palette.

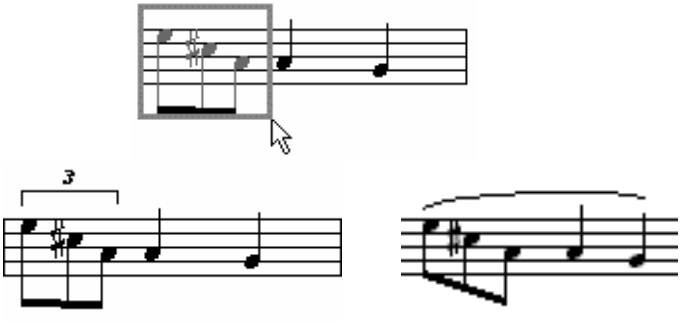


FIGURE 3 - 4: Creating a Tuplet or Slur

- Click and drag down to insert the tuplet or legato above the notes to be selected.
- Click and drag up to insert the tuplet or legato below the notes to be selected.
- Press the "**X**" key and click on the tuplet or legato to delete it.

- **Nested tuplets (tuplet within a tuplet)**

Choose the value required from the “Rhythmic Groups” palette. Click and drag the mouse pointer to select a tuplet group within another tuplet. A bracket will drop identifying the nested tuplet.

- **User-defined Tuplet**

Other than the common triplet, quintuplet, etc. it may be necessary to create a unique rhythmic group. Divisions = the number of equally divided notes. Value = total duration equal to one undivided note times the number selected. E.g. a quarter-note triplet defaults as follows: Divisions = 3 / Value = 2. (Total duration of 2 quarter notes divided equally into three.)

3.4.12 Ties

Ties connect contiguous notes of the same pitch causing the first note to sound for the duration of both notes. Ties are *not* the same as slurs.

a. While in the **Insert** mode, hit the “**V**” key or press a **Tie** button in the “Notes” palette.

b. Click on the notehead of the first note of a tied pair to insert the tie with a downward arc.

c. Right-click (**option + click** for *Mac*) to insert a tie with upward arc.

d. To delete a tie, hit the “**X**” key and click the first note of the pair to delete. You can also use the **Select tool** and **Delete** key to delete ties.

NOTE: A tie across a system (tie at end of line) automatically creates a “linked tie” marking at the end of the source system as well as to its partner at beginning of the next system.

3.4.13 Barlines

While in the **Insert** mode, hit the “**I**” key (or select any barline from the “Barlines & Repeats” palette).

- Click anywhere in the active staffline to **Insert** a barline.

To Change a barline,

a. Select a barline from the “Barlines” palette.

b. In Change mode, click on a barline to change to selected barline.

c. Press the “**X**” key and click on the barline to delete it.

3.5 Edit Shapes

Detailed features of certain objects can be changed in the “Edit Shapes” mode. Beam angles, lengths and curves of slurs and ties, even horizontal and vertical “nudging” of notes and rests are all controlled by dragging control points or the objects themselves. To open “Edit Shapes” mode, press the “Edit Shapes” button in the “Text and Controllers” toolbar. To return to normal edit mode, press the “Edit Shapes” button again. For more information, turn to "Edit Shapes", Section 4.4, on page 69.

3.6 Key and Clef Transposition

Transposing all or part of a score can be accomplished in one of several ways. The most common is “transpose globally by key”, e.g. change an entire song from the key of E-Flat to the key of C.

Other transposition methods such as transpose-by-clef, transpose within a selected range and transpose-notes-only (either harmonically or enharmonic ally) are all possible. For information on these additional transposition methods turn to "Transposition", Section 6.4, on page 93.

To transpose the key of an entire score,

a. Choose **Transpose** from the **Edit** menu (**Ctrl +T** *Win* **/ Cmnd+T** *Mac***)**.

b. The “source” key signature will appear in the main window along with its signature name listed in both major and relative minor keys.

FIGURE 3 - 5: Key Transposition

c. Choose to transpose either by **Key** or by **Clef** or by **Pitch.**

d. Use the scroller to select a new key signature if by *Key* or a new clef sign if by *Clef*.

e. With **Closest** selected, SmartScore will transpose to the target key, up or down, with the least number of intervals. Choose **Up** or **Down** if you wish to make your own choice. Push **OK**.

3.7 Creating a New ENF Score from Scratch

3.7.1 New score

To create an empty ENF score using one of several basic templates,

a. Push the **Score** button on the Navigator or select **New** > **New ENF** under the **File** menu (**Ctrl + N** (Win) / **Cmnd + N** (Mac)).

b. Type in a **Title** for the new score.

c. Add the **Composer**’s name for the first page score header.

d. Press the **Page Setup** button to change the basic page layout of your score. See “File -> Page Setup” on page 169 for details.

NOTE: **Tempo** will set the metronome for display in ENF and for playback.

FIGURE 3 - 6: New score window

NOTE: To create an ENF document without clefs, uncheck **Insert Clef Signs Automatically**.

3.7.2 Using Built-in Templates

SmartScore has 15 preset templates including solo instrument, piano, SA / TB score, duet and custom.

a. Select a desired template from **System Type in Score** window.

b. Once the score is open, use palettes to select objects and place them in the score in **Insert** mode.

c. Remember to select **File > Save As** in order to save the new ENF file with a name you give to it.

TIP: To create a new page once you have reached the bottom of an ENF page, place your cursor in the last system and hold down the CTRL button (this "holds" the active system). Select **Edit > System** > **Insert Below**. A new page will be created and the new system will be added to it. Repeat as necessary to create as many new systems and pages as you require.

3.7.3 Real Time Recording

An alternative to entering notes in by hand is to record MIDI-based performances using a MIDI keyboard or some other MIDI instrument. For more about this, see "MIDI Recording", Section 7.9, on page 153.

3.7.4 Step Time Recording

An alternative to Real Time Recording is Step Time Recording. Step Time Recording is done in MIDI and can be a very fast method of entering in notes (when you can't scan it in of course!). For more, turn to "Step Time Recording", Section 7.10, on page 157.

3.7.5 Select Area (create bitmap for pasting)

To Copy an area of an ENF file for pasting into another application (e.g Microsoft™ Word®, Adobe™ Photoshop®, etc.),

a. Press the "O" key to activate the Select tool.

b. Right-click *(***option + click** *for Mac)* and drag to select desired region in the ENF pane.

c. Hit (**Ctrl +C** / **Cmnd+C**) or **Edit > Copy** to copy selected region to the clipboard as a ***bitmap image***.

NOTE: Before copying to clipboard, uncheck **View > Show Active Staff**, otherwise, you may not capture the entire view.

TIP: Use this feature to take "snapshots" of musical snippets and **Paste** into word processors or other non-music programs.

3.8 Saving and Exporting an ENF File

You can save the current ENF file at any time by hitting the **Save** button in the Main toolbar, by hitting **Ctrl + S** (**Cmnd + S** for *Mac***)** or by selecting **File > Save**. If **Options -> Auto-Save** is on, incremental saving becomes automatic. For more on Auto-Save, turn to "Options -> Auto Save" on page 182. A rule of thumb for all files, especially big ones, is "Be safe. Save often."

You can save SmartScore files in several different file formats such as MIDI, Finale and NIFF.

- .MID files will import playback data into most other music software programs with no page formatting. All graphical information about note position, stem direction, voices, etc. are lost. MIDI is to music what ASCII is to text.
- .FIN files will import SmartScore pages into Finale® 2000c or better with graphical information and page layout intact. Use the **File > Import** selection in Finale to open a SmartScore .FIN file.
- SmartScore saves two flavors of .NIF files: **.NIF for Lime** and **.NIF for Sibelius** SmartScore .NIF files conform to the NIFF (Notation Interchange File Format) Specification 6b as published by the NIFF steering committee in 1998. NIFF files contain both graphical and playback information and can be used as a means of exchanging music notation and MIDI data between software programs that support the format.

3.8.1 Saving ENF files as MIDI or other file types

a. Select **File > Save As.**

b. In the Filetype/Format window, choose a format to save the active SmartScore file: **MIDI Type 1** (Multiple Track / Multiple Channel), **MIDI Type 0** (Single Track / Multiple Channel), **FINALE** or **NIFF**.

c. Browse to another directory and change the name if desired.

d. Press **OK**. The file will be saved in the last directory used with the “Save As” command.

NOTE: When saving ENF to MIDI files, a dialog box will open to explain that articulations such as slurs, staccatos and tenutos will create MIDI events that are not quantized. You will be given a choice to save the MIDI files with articulations removed or kept. For the purpose of playback only, it is recommended that articulations be kept. It is recommended that articulations be removed if MIDI files are to be imported into other notation-based programs.

Chapter 4 Editing Text and Symbols

During recognition of music, text characters found between stafflines are assumed to be lyrics. Characters found outside stafflines are treated as standard text fields. There are certain exceptions. For example, the recognizer attempts to identify italicized ***f*** and ***p*** marks (dynamic markings). If so, these characters are classified as dynamics and their values are applied to MIDI playback. See “Dynamics” on page 46 for information about dynamics.

Push the “T” or “L” button to enter and exit Text or Lyric modes. While in either mode, it is not possible to do other sorts of edits.

4.1 Text

Characters outside of stafflines are treated as “dumb” text blocks. They are differentiated from lyrics by color. Text is black. Lyrics are blue.

NOTE: Score headers are not considered “text”. See “Edit -> Score Header” on page 174 for creating and editing the header line.

To edit a text field,

a. Push the “**T**” button in the Text and Controllers toolbar. Toggle the “C” and select **Edit** mode (vertical cursor). Click anywhere inside an existing ENF text block to edit text.

b. The cursor will flash within the highlighted field. Use the Left Arrow or Right Arrow buttons on your keyboard to navigate within a text field.

c. Drag to highlight one or more characters within the field to replace with newly-typed characters or to delete (**Delete** key). Highlighted characters can also be cut, copied or pasted elsewhere using standard **Ctrl** +“**X**”, “**C**” and “**V**” shortcuts (**Cmnd** + “**X**”, “**C**” and “**V**” *for Mac*).

To move a text field,

a. Push the **Edit Shapes** button in the Text and Controllers toolbar.

b. Position your mouse in the staff associated with the text field.

NOTE: You may want View > Show Active Staff checked to verify. Remember to hold the **Ctrl** button down to keep a particular staff line active while moving you cursor around the page.

c. Click and drag any text field to move. Use the Select tool to select and move multiple text fields around while in **Edit Shapes**.

To create a new text field,

a. Push the "**T**" button and toggle "**C**" to enter **Insert** mode (white arrow). Click anywhere in an ENF page outside a staff and begin typing.

To delete text fields,

a. To delete one or more text fields use the Select tool ("**O**" key) to highlight fields by clicking or dragging. Hit the Delete (Del) key.

NOTE: Click outside any text field to reset cursor (Insert / Change).

4.2 Lyrics

Lyrics hold special meaning in SmartScore. A lyric "block" is a string of characters equivalent to a spoken syllable. Out of recognition, a lyric block becomes associated with a single note or rest in the staffline immediately above it. Locating the note or rest associated with a lyric block is as simple as searching directly above the center-justified lyric block. All lyric blocks within stafflines are horizontally linked and are separated from each other by dashes, underlines and/or periods.

NOTE: Lyrics may be found *below* a system (e.g. some choral scores) and a special option should be selected before Recognition. See "Lyrics Under Last Staff of Systems" on page 14.

TIP: Nudge notes in **Edit Shapes** to verify lyric-to-note associations.

To edit existing lyrics,

a. Push the "**L**" button in the Text and Controllers toolbar to enter Lyric mode.

b. Click into a lyric block or on an associated note or rest. Once highlighted, text within the block can be edited like normal text.

c. Use the ***left arrow*** or ***right arrow*** buttons on your keyboard to navigate within a lyric block. Once positioned, type normally. Click and drag on one or more characters within the block to replace with new characters or to delete one or more characters in a lyric block. Characters can also be cut, copied or pasted elsewhere using standard **Ctrl** + "**X**", "**C**" and "**V**" keyboard shortcuts (**Cmnd** + "**X**", "**C**" and "**V**" *for Mac).*

d. To edit a lyric block below the current line of lyrics, click into the topmost line of lyrics and use the ***down arrow*** key. Cursor will enter the next lyric block in line immediately below. Hit **Return** to start a new lyric line (and new lyric block) beginning at the first note of system.

e. Use ***Backspace*** key to delete characters within a lyric block.

f. Lyrics can be moved up or down while holding the **Shift** button down and then clicking and dragging any lyric block.

g. Push "**L**" again (Text and Controllers toolbar) to exit Lyric Edit.

4.2.1 Dashes, spaces and underscores

Dashes, spaces and underscores are special characters used to separate lyric blocks. Typing any of these characters will move the cursor to the next block. Use the ***Backspace*** key to delete dashes, spaces and underscores.

In the following example, the block "*der-*" was missed in recognition. The cursor was positioned at the end of the previous block. A dash was entered to create a new "syllabic" block and the correct text was then entered.

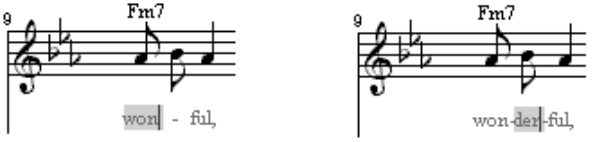


FIGURE 4 - 1: Editing Lyrics

- **Dash** = Moves the cursor to next lyric block and inserts a dash. Normally used to connect multiple syllables within a single word.
- **Space** = Moves the cursor to the next lyric block. Normally used to separate words. Does not insert a dash or an underline.
- **Underline** = Normally used as a "melisma", an underline indicates that one vocal sound should be extended over two or more beats. Inserting creates an underline up to the next block. Entering multiple underlines will string them together over several lyric blocks.
- **Backspace** = Deletes characters inside a lyric block. Also deletes hyphens when backspacing from one lyric block to the next.
- **Carriage Return** = Creates a new lyric line and positions cursor in the first lyric block below beginning note or rest of the staffline.

4.3 Text and Lyrics: Changing Styles and Entering

4.3.1 Changing styles of Text and Lyrics

Out of recognition, all text fields and lyric blocks are matched to the closest font type and size available on your computer. You can change the font type, size and color of text and lyrics. Modifying the style of any lyric block will change ALL lyric blocks because lyric blocks are tightly integrated and text fields are not (they're "dumb").

To modify font styles of text fields or lyric blocks,

a. Push the "**T**" button to enter Text mode. The **Select tool** will highlight more than one text field and changes will apply to all. Right-click (***alt / option+ click*** for *Mac*) to open the Style window.

b. For lyrics, push the "**L**" button and click on either the associated note or rest or directly into a lyric field. Right-click to open the Style window (***alt / option+ click*** for *Mac*).

The current text style will be highlighted in the **Text Style** window. Other font styles found in the current document will also be displayed.

c. Click on the style you wish to change and then select "Modify Style". "Add Style" and "Delete Style" options are also available.

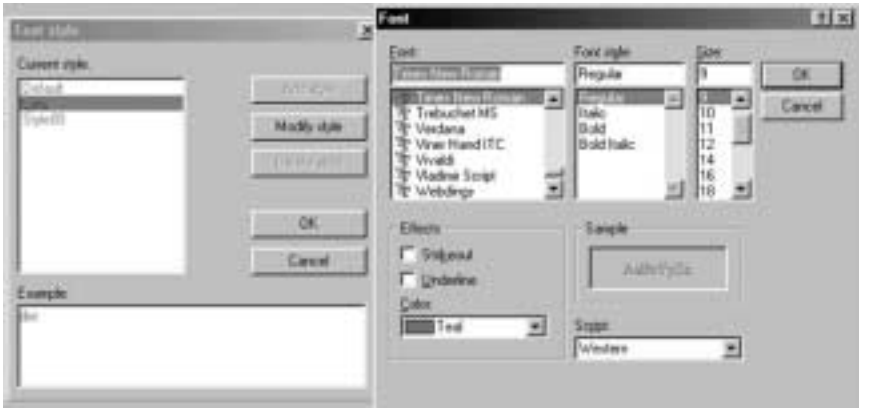


FIGURE 4 - 2: Changing Text and Lyric styles

The **Font** window is where the current font name, style, size and color are displayed. Choose an alternative font, style, size or color. **OK** will apply the change and exit the “Font” window. **OK** in “Styles” will close that window. Selected fields will then be updated.

4.4 Edit Shapes

Edit Shapes is an extremely useful tool that allows you to make a number of graphical (non-musical) changes to the ENF view. Modify beam angles, change the shape of slurs, tuplets and ties, move one or more objects horizontally as well as verify joining of vertically-aligned voices and note-to-lyric links.

To alter the shape of arcs and beams,

a. Push the Edit Shapes button in the Text and Controllers toolbar.

FIGURE 4 - 3: Edit Shapes

b. Position the cursor over one of the black-outlined squares, hold down and drag. These “handles” alter the height and/or angle of an associated beam. They also alter the endpoint of slurs... particularly handy in a tight area where beams and slurs may intersect other objects.

c. Position the cursor over one of the brown-outlined squares. Moving these “control points” alters the angle of half of a slur or tie, making the arc lessor or greater. The “balance” of an arc depends on the relative length and angle of each control “arm” attached to either endpoint.

4.4.1 Nudging notes and rests in Edit Shapes

To nudge text, note and rest objects horizontally in Edit Shapes,

a. Place your cursor over any notehead, rest or text field.

b. Click and drag until the object is positioned where you want it. Notice that text fields can move in any direction.

NOTE: Horizontal reformatting of an entire score is not currently possible. Objects fixed inside a staff must remain in that staff.

To move groups of objects horizontally,

a. Push the **Edit Shapes** button in the Text and Controllers toolbar to exit Edit Shapes mode. Use the Select Tool to highlight a range of objects including notes, rests, guitar fret and chord symbols.

b. Push **Edit Shapes** button again and using your mouse, drag highlighted objects left or right.

NOTE: Beam angles and stem length may become “normalized” (return to default angle and length) when selected and moved.

NOTE: Objects are constrained to the measure in which they reside.

4.4.2 Repositioning lyrics in Edit Shapes

Occasionally, lyrics are jammed together either because the default font is too large or the original music was not well-punctuated.

a. In Edit Shapes, click and drag on the notehead associated with the lyric block that in a crowded area. Move the note left or right to reposition. Notice that the lyric block will move with the note when moved horizontally.

FIGURE 4 - 4: Edit Shapes - repositioning Lyrics

TIP: Rather than repositioning a lot of lyrics, try reducing lyric font size. See “Changing styles of Text and Lyrics” on page 68.

4.4.3 Using Edit Shapes to verify associations

Nudging note heads horizontally is a great way to verify that a particular lyric block is indeed associated with a note stem. Besides verifying notes with lyric blocks, Edit Shapes is extremely useful in verifying that vertical events are properly aligned. Refer to “Vertical Alignment and offset voices” on page 39 for more information.

To verify vertical alignment of two or more voices,

a. Open Edit Shapes. Horizontally nudge the upper note (Voice #1) of a vertically aligned set of notes and/or rests. All vertically aligned (joined) notes or rests will move together.

b. To exit Edit Shapes mode, push the Edit Shapes button again.

4.5 Guitar Frets and Chord Symbols

Guitar fret diagrams are recognized automatically. Frets and their associated chord symbols also update with key transposition. You can choose to display either the chord symbol or the fret diagram, or both. It is important to understand that each corresponding chord symbol is automatically tied to the fret diagram. For a chord symbol to have “intelligence” by itself, that is, for it to change with key transposition, its associated fret diagram must be recognized or inserted first. Alpha/numeric chord symbols may be recognized, but only as dumb text.

Following recognition, there may be some mis-recognized fret diagrams. If so, you can change them easily...

To change an existing guitar fret / chord symbol,

a. **Ctrl + click** on any existing fret symbol (or select the fret symbol from the Text and Controllers Toolbar). Your cursor should change to a "fretboard".

b. Toggle the "**C**" key to Change mode (fretboard with arrow).

c. Click on any existing fretboard symbol. The **Guitar Chord** library will open with the selected symbol displayed. If the selected fret is not found in the Guitar Chord Library, a C major chord will be displayed.

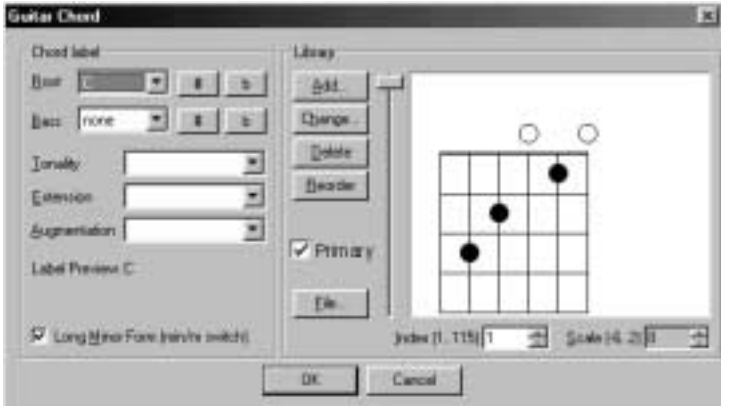


FIGURE 4 - 5: Guitar frets and chord symbols library

d. Select the desired chord from **Root** pull-down menu.

e. Select **sharp, flat, Tonality, Extension** and **Augmentation**.

NOTE: More than one chord can apply to the same parameters. When ***Primary*** is checked, that chord pattern will be selected before other chords having duplicate parameters.

f. Click **OK**. The fret diagram and chord symbol will update.

To insert a fret / chord symbol from the Guitar Chord library,

a. Push the fretboard symbol in the Text and Controllers toolbar.

FIGURE 4 - 6: Guitar Fret Symbol

b. Click above the staff line where you wish to insert the symbol.

4.5.1 Creating and changing chord symbols in the GCL

To create a new guitar fret / chord symbol,

a. Select **Guitar Chord Library** from the **Edit** menu.

b. Push the **Add** button in the **Library** section of the chord window.

c. Choose a root with sharp or flat, bass tone (with sharp or flat) and descriptive modifier (tonality, extension and augmentation).

d. Press the **Frets** tab in the upper part of the window.

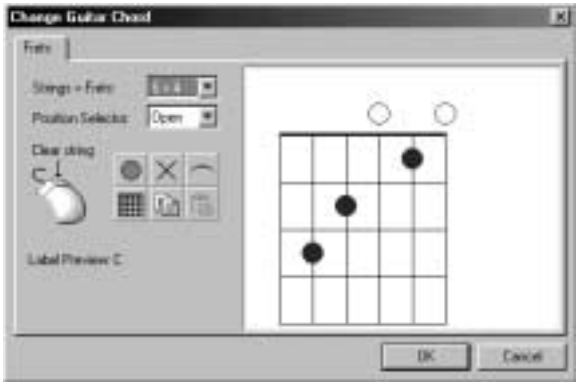


FIGURE 4 - 7: Frets tab window of Guitar Chord library

- **Right-click (Option + click** for *Mac*) on any finger marker inside the fretboard to remove it.
- **Clear All** (*grid*) removes all current finger markers in fretboard.
- **String Marke**r (*dot*) places a finger marker on any string between frets on the fretboard. Clicking above the fretboard nut (*thick line*) places an open string symbol (open dot) at any string position.
- **Barre Marker** (*arc*) places a barre marker above the fretboard by dragging above the nut. When dragged across strings inside the fretboard, the barre marker is positioned between frets.

- **Mute-string marker** (*x*) places an X above any string position to indicate a muted string. When clicked above the nut, any finger marker of that string is deleted.
- For banjo, ukulele, bass or other non-six string fretted instrument or for chords that require more range than 4 frets, choose the configuration you wish from **Strings x Frets** combo box.
- To show fingerings in other than 1st position, choose from **Position Selector**. The solid line represents the fret position.
- Press **Copy** to copy the current fretboard to the clipboard.
- Press **Paste** to paste in the fretboard layout from the clipboard.

Press **Add**. The newly created chord and symbol will be written to the library. You will be warned if a symbol with the exact chord label already exists. If so, push **Done**, rename the chord and **Add** again.

To change an existing chord or symbol in the Guitar Chord Library,

a. Push the **Change** button in the **Library** section of chord window.

b. Proceed to edit chord symbol as described above. When finished, press **OK** in Frets window. Chord symbol is automatically updated.

NOTE: You can page through symbols using either the scroller or clicking through the "index" window in bottom right corner.

To delete existing chord symbol(s),

- In **Delete** mode ("**X**" key), click on any symbol to delete it.
  To delete several fret symbols, use the Select tool, highlight as many frets on one line that you wish and hit the **Delete** key.

To move one or more chord symbols,

- Use the Select tool ("**O**" key) and highlight more than one guitar fretboard / chord symbol above a staff line.
- Push the **Edit Shapes** button in the Text and Controllers toolbar.
- Use your mouse to click and drag fretboard/chord symbols.

To reorder all chords based on alphabetical order,

- Press **Reorder**.

To scale guitar fretboard / chord symbols,

- From the Scale window, change the size of fretboard symbol from +2 down to -6. All fretboard and/or chord symbols will re-size to this scale.

To export, import, reset or clear a GCL library file,

- Press **File** in the Chord Library window.
- **Export Library** will save guitar chord library to a file. Choose the target directory and/or drive to save.
- **Import Library** will load a saved guitar chord library from a directory and/or drive. Locate the .GCL file and push OK to load.
- **Reset to Default** will reload original guitar chord library as initially loaded during installation.
- **Clear All Chords** deletes all current guitar chord library data.

4.6 Bracketing

Use **Bracketing** to assign braces, grand staff brackets and to join selected parts into barline groups in an ENF document.

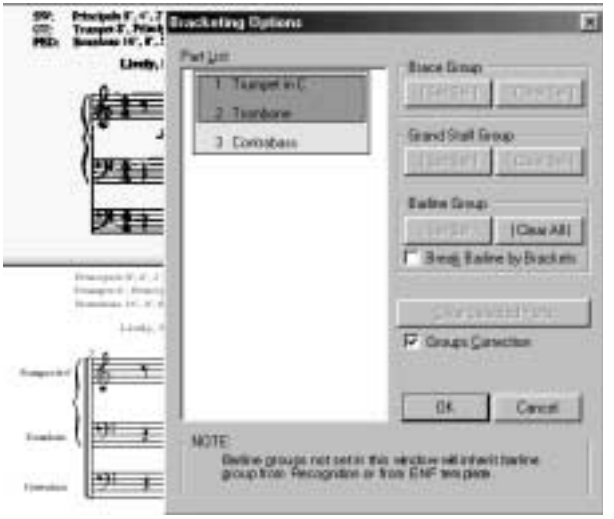


FIGURE 4 - 8: Bracketing window

To create braces, grand staff brackets and create barline groups,

a. Select **Bracketing** from **Edit** menu (**Ctrl** + **B (Cmnd + B** Mac).

b. Highlight two or more parts in list to select for grouping.

c. Choose **Brace**, **Grand Staff** or **Barline** Group set and press **Set Sel**.

d. Continue to select parts for any other type of group. Any selected group can overlap parts of another selected group.

e. Click "**Break Barline by Brackets**" checkbox to have barlines break according to instrument families which are already designated by braces, groups and grand staffs.

f. Choose **Clear Sel** or **Clear Selected Parts** in selected group or **Clear All** to remove groupings.

Chapter 5 Working with Drums

SmartScore has some really nice drum features including MIDI support for the percussion clef, automatic drum patterns and a “drum kit” which records a drum track by tapping keys on your computer keyboard.

5.1 Percussion clef (Clefs Palette)

When the Percussion Clef is entered on a staffline, the MIDI channel assignment for that staff and part switches to 10; the default drum channel. Notes can be entered, deleted and pitch-shifted normally, and will playback as MIDI drums. The percussion clef works in den tic ally as all other clefs, including Unify Clefs (See Section 6.13.3 on page 122).

5.1.1 Playback > Drumset

Drum sounds are associated with every line and space of the drum clef staff. Accidentals are ignored regardless of the key of the score,

To change default pitch-to-MIDI drum mapping

a. Select Playback > Drum Set.

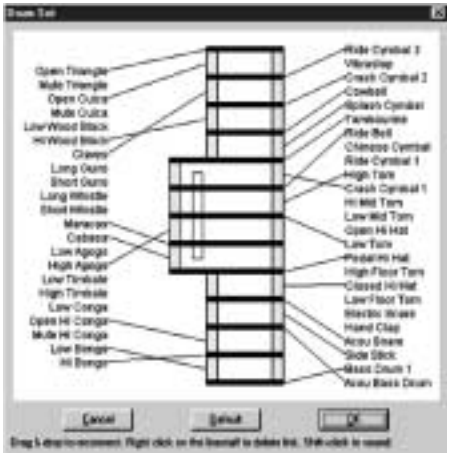


FIGURE 5 - 1: Linking stafflines to MIDI drums in Drumset map

b. Using the mouse, drag links from staff and ledger lines and spaces in the window and reconnect to list of General MIDI

drums on left-hand and right-hand sides of window. Press **OK** to finalize changes.

5.1.2 Creating a drum pattern in ENF

a. From the Navigator palette, select "**Score**". In the ***System Type in Score*** pull-down menu, select ***Solo/Part***. Click **OK**.

b. **Right-click** (**Ctrl + click** *for Mac*) on either the note or rest palette and select ***Clefs***. Click on the rectangular "percussion clef".

c. Toggle the "C" key to get to the **Change** mode and click on the treble clef in the first staff line. All clefs should then update.

d. Select ***eighth note*** from the **Notes** palette and using *beam direction tools*, create the following pattern. **Spacebar** will play back.

FIGURE 5 - 2: Creating a drum pattern

NOTE: Simultaneous drum sounds must be contained in the same voice. Therefore, you will need to use the **Cluster** tool to add additional drum "note heads" to an existing note stem. Holding down **Shift** and dragging a notehead up or down will allow you to hear each drum sound associated with each space and line.

5.2 Automatic Drum Patterns

It's more fun if it's got a beat! Simply select a drum accompaniment or you can add customized patterns to the drum library yourself.

5.2.1 Play back with automatic drum pattern

To select an instant drum pattern for ENF playback,

a. With any ENF file open, click on the **Drum Pattern** button in the SmartScore toolbar.

b. Sort each column by clicking on its name in the column header.

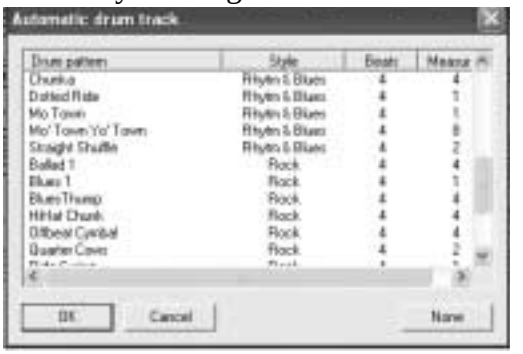


FIGURE 5 - 3: Automatic Drum Pattern Library

c. Click on a pattern that matches the time signature and style of your ENF file. Press **OK** to accept the selection.

d. Press the **spacebar** to hear your file playback with drum accompaniment.

To Remove a drum pattern from the library,

- Locate the ***Styles*** folder inside the SmartScore application folder and delete the ***.ssd*** file you wish to remove.

5.2.2 Adding custom drum patterns

The drum pattern library is expandable. You can add new patterns that you have either created yourself or imported from a MIDI file which contains a drum track on MIDI Channel 10.

- **Adding custom drum patterns from ENF**

To add an ENF drum pattern to the automatic drum pattern library,

a. Open an ENF file which contains a percussion part (written with a percussion clef) or,

b. Open an ENF file in which you have created your own drum pattern. Refer to “Creating a drum pattern in ENF” on page 78 for more information on how to create drum patterns.

c. Click the **MIDI** button in the **Navigator** to open the MIDI Overview.

NOTE: See Section 7.2 on page 130 for more about MIDI views.

d. Select **Edit > Create Automatic Drum Pattern**.

FIGURE 5 - 4: Creating a drum pattern from a MIDI file

e. Locate the track in which the drum is played and select it in the ***Track*** field. Note that MIDI drums will sound only if they are assigned to MIDI Channel 10.

NOTE: To check the channel number of a track, right-click (**Ctrl + click** *for Mac*) next to the track number in MIDI Overview then select ***Piano Roll***. The channel number (and its color) will appear in the upper left corner of the Piano Roll View. Close the Piano Roll window to return to Overview window. Another option is to simply open the Playback Console (**Ctrl + 9**). Next to each track number listing is a colored box containing the MIDI channel number assigned.

f. Enter the name you wish to give the pattern in the ***Name*** field.

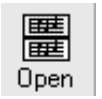
g. Select a musical style to classify the new pattern and enter it in the ***Style*** pull-down menu.

h. Locate the first measure where you wish the pattern to begin and enter it into the ***Beginning Measure*** field.

i. Decide how many measures you wish the pattern to contain and enter it in the ***Length (in Measures)*** field. This is a very important decision if you want to have proper-sounding patterns.

j. Click **Generate** to add the pattern to the library. It's name will then appear in the **Automatic Drum Pattern** window.

TIP: Add "fills" to longer patterns (8 or 12 measures). Repeated fills in patterns having 1 or 2 measures usually sound dumb.



- **Importing MIDI drum patterns**

  a. Push the **Open** button in the Navigator (**File > Open**) and click to select *MIDI* from the "***Files of Type***" pull-down menu. Browse to a MIDI file containing a drum track and double-click.

  b. Push the ***Play*** button to hear the MIDI file play back. Push ***Close***.

  c. The imported MIDI file will appear in the MIDI Overview window.

  d. Repeat the process from Step d) above.

5.3 Virtual Drum Kit

This option allows you to create a drum track to accompany any ENF playback without requiring a drum machine or any other external MIDI device. It maps selected MIDI drum sounds to the keys of your computer keyboard. MIDI quantization to sixteenth notes is applied by default. For more information about quantization, see "Snap to" on page 155.

5.3.1 Recording a virtual drum track

To create a virtual MIDI drum track in ENF,

a. Select **Options > Virtual Drum Kit.**

b. In the **New MIDI View** window, *New Track* is selected. Press **OK**.

c. A MIDI Record view will open. Test drum sounds by hitting the center keys on the two front rows of your computer keyboard.

d. When ready, hit the **Record** button. You will hear a metronome sound for one measure. Playback and drum recording begins.

e. Hit Stop when finished. Close the MIDI window to return to ENF.

5.3.2 Defining Virtual Drum Kit

To change a MIDI drum and link to your computer keyboard,

a. Select **Options > Virtual Drum Kit Definition**

FIGURE 5 - 5: Virtual Drum Kit Definition

b. Click on an instrument / key in *Instrument* list.

c. To reassign a MIDI drum instrument, push **Change Instrument** and make another MIDI drum selection in the pull-down menu.

d. To reassign a keyboard key for that instrument, push **Change Key** and press any keyboard key to be linked to that instrument.

e. When finished, press **OK**.

To add a MIDI drum and link it to your computer keyboard,

a. Push **Add**.

b. Press a key to become associated with the sound.

c. Select a new drum sound from the pull-down menu.

d. When finished, press **OK**.

Chapter 6 Detailed ENF Editing

6.1 More ENF navigating

6.1.1 Split-screen and Zoom Window Viewing

The default view is the “split screen” view immediately following recognition. An alternative view is the floating “Zoom Window”.

FIGURE 6 - 1: Zoom Window

To use the “Zoom Window”,

a. Go to **View** menu, select “**Zoom Window”** and “**TIFF**” view.

FIGURE 6 - 2: View > Zoom Window

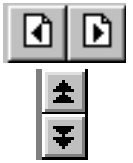
b. To increase or decrease zoom view of the window, choose a zoom magnification from View > Zoom Window selection. Available zoom levels are Normal (1x), 2x and 3x magnification.

6.1.2 Scrolling

Use the scroll bar and up/down arrows to the right of the ENF window. You may also use the arrow keys located on your computer keyboard to scroll up, down, left, and right in an ENF document.

6.1.3 Paging

To page forward or backward in an ENF document,



- Use the “Next page” / “Previous page” buttons located in the Main Toolbar or push the double paging arrows at the lower right-hand corner of the SmartScore window.

6.1.4 Go To…(**Ctrl +G** or **Cmnd**+**G** for *Mac*)

While editing, you can quickly jump to any page or measure in ENF file.

To open the GoTo… window

a. Choose the **View** menu and select **Go To...** (**Ctrl+G** or **Cmnd**+**G** for *Mac*).

FIGURE 6 - 3: Go To window

b. Select whether it is a Part, Page or Measure you wish to jump to.

c. Enter the Part, Page or Measure number.

d. Checking the **Open Target in New View** box will open a new ENF at the targeted Part, Page or Measure. Push **OK** to jump.

6.1.5 Tool Palettes (F1-F9 keys)

All notation objects used in SmartScore can be selected from one of several Tool Palettes. By default, up to 3 palettes remain open at one time. Palettes “recycle” by default, but you may have all open at once.

TIP: The **F1** key always resets windows and palettes to their default.

TIP: To quickly select an alternative Tool Palette, right-click on any open Tool Palette. (*Mac*: **Ctrl + click**). All Tool Palettes become available to select. Notice the open palette becomes replaced with the selected palette when in the *Recycle* mode.

While selecting an alternative palette, you may choose one of 4 modes.

- **Show All** opens all 9 SmartScore Tool Palettes.
- **Hide All** removes all Tool Palettes from view.
- **Reset** (**F1**) returns to default display of Notes and Rests palettes.
- **Recycle** (Default) changes the *secondary* open palette when a Quick Key is activated. The *Notes* palette remains open and does not cycle.

FIGURE 6 - 4: Tool Palette Selection

You may also use the function keys along the top of your computer keyboard to choose any of the available Tool Palettes. **F1** will reset the palettes to their default display settings.

NOTE: For detailed functions of all tool palettes, turn to "Tool Palettes", Section 9.1, on page 160.

6.1.6 Pitch shift (Shift + drag)

To change the pitch of any note,

- Hold down the **"**Shift**"** key, click on and drag a note head up or down to shift its vertical position in the staff.

TIP: To adjust vertical placement of a rest, hold the **SHIFT** key down, click and drag the rest up or down.

To change the pitch of several notes at once,

a. Press "**O**" key to activate the Select tool (also in SmartScore Toolbar)

b. Click and drag a box around any series of notes.

c. Hold down the "**Shift**" key and drag the notes with the mouse.

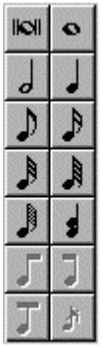
6.2 Quick Keys

TIP: Refer to the Quick Keys maps on page 126 for a graphic depiction of all SmartScore keyboard shortcut keys.

6.2.1 QuickSelect (Ctrl + Click)

The fastest way to choose any object for inserting and changing is to QuickSelect it. **Ctrl + Click** on any object inside the active staff and the cursor inherits all of that object's attributes.The mouse pointer becomes any object that is QuickSelected.

6.2.2 Insert and Change Modes (C)



To insert a note or rest anywhere in the active staffline,

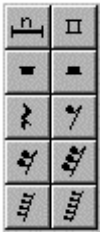
a. Toggle the "**C**" key to activate the **Insert** mode.

b. Select any note or rest from the "Notes" or "Rests" palette.

c. Click anywhere in the active staff to drop the object.

To insert a multi-measure rest,

- Select the "n-measures" object from the "Rests" palette.
- Select the number of empty measures.
- Click in an empty measure of the active staffline.



To change the rhythmic value of an existing note or rest,

a. Toggle the "**C**" key to the **Change** mode.

b. Select any note value from the "Notes" or "Rests" palette.

c. Click on any existing note or rest to change to selected value.

NOTE: When you *QuickSelect* (**Ctrl + Click)** on any object inside the active staff, the palette associated with the object will open.

6.2.3 Delete by Group / Delete Any (X)

Press the "**X**" key of your computer keyboard to toggle between the **Delete by Group** and **Delete Any** modes.

In the **Delete by Group** mode, the cursor becomes an arrow with the selected object type in grey. In the **Delete Any** mode the cursor becomes an arrow with an "**X**" next to it.

- **Delete by Group** mode removes any object clicked on that is found in the active Tool Palette but no other object.

- **Delete Any** mode removes any notation object that is clicked with the mouse.

NOTE: This delete will remove an entire chord. To remove a single note from a chord, hit the "**X**" then "**Z**" (cluster) key. Click a note.

To delete any object in the active staff,

a. Toggle the "**X**" key to **Delete Any** mode.

b. Click on any object.

TIP: To select and delete a large number of objects or for the occasional object that does not respond to normal click-to-delete action, use the Select tool. Hit "Delete" key to remove selected objects.

6.2.4 Select tool (O) / Quick Delete

Use the Select tool ("**O**" key) for choosing more than one object. Many functions including mass delete, mass pitch shift, vertical alignment, voice splitting, flipping stem directions and copy/paste work with the Select tool. Its button is found in the SmartScore toolbar.

6.2.5 Beam Selected Flagged Notes (B)

Any group of selected flagged notes on the same staff can be transformed into one beamed group.

To convert a sequence of flagged notes into one beamed group,

a. Use the Select tool (**O**) to select a group of flagged notes to be beamed together.

b. Hit the "**B**" key to form the flagged notes into a beamed group.

6.2.6 Delete Selected Ties and Articulations (G)

Occasionally, you might find an area full of incorrectly recognized ties and/or slurs or hairpins. Use this tool to "mass-delete" these objects.

To mass-delete ties and articulations,

a. Use the Select tool (**O**) to select an entire region for cleanup. **Edit > Select All** (**Ctrl + A**) will select everything on the current page.

b. Hit the "**G**" key. Only articulations will be deleted. All other notation objects remain unaffected.

6.2.7 Dots (D)

Hit the "**D**" key. This toggles between **Insert** a dot and **Delete** a dot modes. Notice how the cursor alternates between a solid insert dot and grayed-out delete dot.

Any note or rest may be selected with dots of prolongation assigned to it. Select a note or rest from the appropriate palette, then click on the single or double-dot button inside the palette. In **Insert** mode, the new note/rest will have a dot. In **Change** mode, a clicked note/rest will acquire a dot.

6.2.8 Ties (V)

Hit the "**V**" key. This toggles you between the solid **Insert** tie and grayed-out **Delete** tie modes. Click on the first note to Insert tie with a downward arc and right-click **(option** + **click** for *Mac*) to insert with an upward arc. The "V" tie tool will insert multiple ties from one chord cluster to the next as long as note pitches match.

To insert only one tie at a time, select the "single tie" button from the Notes palette.

6.2.9 Beam direction (A)

With any single flagged note chosen, hit the "**A**" key. This toggles between Begin beam, Middle beam and End beam note configurations.

6.2.10 Flags and beams (F)

The "**F**" key toggles between flag and beam note attributes of any clicked note. Flag/beam toggle works in both **Insert** or **Change** modes.

6.2.11 Stem direction (S)

The "**S**" key changes the default note stem direction. In **Insert** mode, toggling the "**S**" key reverses the default stem direction of an inserted note.

Default stem direction of an inserted note is determined by its vertical position on the staff. Stem direction of inserted notes automatically changes when the cursor crosses the middle line of any staff.

To place a note with a stem in the opposite direction of the cursor,

- Hit the "**S**" key before inserting any given note. Or right-click (Windows) while inserting *(***option + click** *for Mac)*.

TIP: To reverse the stem directions of several notes at one time, press the "**O**" key, drag to select a group of notes. Then press the "**S**" key to reverse the stem direction of all selected notes.

To change the stem direction of an existing note,

a. Toggle the "**C**" key to activate the **Change** mode.

b. Right-click on any given notehead *(***option + click** *for Mac)*. The stem direction will change.

NOTE: In general, Voice #1 should have *stems up* and Voice #2 should have *stems down*.

To change the stem direction of several notes at once,

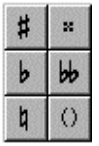
a. Hit the "**O**" key to activate the Select tool.

b. Click and drag a box around any series of notes.

c. Press the "**S**" key to reverse the stem direction of the highlighted notes.

In **Change** mode, an existing note stem can be reversed by right-clicking (Windows) on any existing notehead (**Option + click** for Mac).

6.2.12 Accidentals



To insert an accidental,

a. Select any accidental from the "Notes" or "Articulations" palette.

b. Toggle the "**C**" key to **Insert** mode.

c. Click on the notehead that is to receive the marking.

To change an accidental,

- *S*elect an accidental from the "Notes" palette. Toggle the "C" key until a white arrow appears and click on a notehead to change.

To delete an accidental,

- Press the "**X**" key with any accidental active in cursor and click on a notehead to remove its associated accidental.

A courtesy accidental is bounded by parentheses and acts as a reminder that a note has an accidental; normally used when notation becomes dense. MIDI playback ignores these "redundant" accidentals.

To insert a courtesy accidental,

- Press the parentheses button when any accidental is selected before clicking a notehead.

6.2.13 Rests (R)

Press the "**R**" key to automatically select a quarter rest for editing. "**Shift**" **+ "R**" will select an eighth rest.

6.2.14 Barlines (I)

Hit the "**I**" key to select a standard barline for editing. The "Barlines and Repeats" palette will open as the secondary palette.

6.2.15 Dynamics (P, < and >)

- Press the "**P**" key to select *p* (piano) dynamic marking.
- Hold down "**Shift**" **+ "," ** to select the crescendo hairpin.
- Hold down "**Shift**" **+ "." ** to select the decrescendo hairpin.

The "Dynamics" palette will open as the secondary palette.

6.2.16 Tuplets (T)

The "**T**" key opens the tuplet (Rhythmic Groups) Palette. Triplet is selected as the default. Drag the mouse to box in the notes/rests to become the selected tuplet. Drag downwards to insert the tuplet above the selected notes/rests. Drag upwards to insert the tuplet below selected notes/rests.

6.2.17 Unify Signatures/Clefs (U)

Press the "**U**" key to automatically open the Unify Score window. Unify the clefs, key and time signatures throughout the entire score. Refer to "Unify Key, Time and Clefs (U)" on page 121 for details on using this tool.

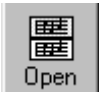
6.2.18 Note values (Number Pad)

To quickly select note duration values,

- Use the keyboard Quick Keys number: **1** = whole note, **2** = half note, **3** = quarter note, etc.

TIP: See Quick Keys map on page 126 for a graphic of shortcut keys.

6.3 Navigator



6.3.1 Open (Ctrl+O / (Cmnd+M *Mac*)

Push to open any SmartScore-compatible file. Select SmartScore (ENF), Image (TIFF, BMP, PCX), or MIDI file from "Files of Type" pull-down menu. Same as **File > Open**.

6.3.2 Scan

Push to initiate scanning. Same as **File > Scan Music > Acquire**.

6.3.3 Recognition

Push to initiate recognition on any pre-scanned image. Same as **File > Recognize.**

6.3.4 Unify (U)

Push to initiate Unify Key, Time and Clefs. Same as **Edit > Unify Signatures**. See "Unify Key, Time and Clefs (U)" on page 121 for details.

6.3.5 Score

Push to create ENF score from scratch. Choose ENF score template from "System Type in Score" pull-down menu. Same as **File > New > New ENF**. See "Creating a New ENF Score from Scratch" on page 61 for details.

6.3.6 Record

Push **Record** button to initiate MIDI Recording. All open ENF documents are closed when MIDI recording is launched. A MIDI Piano Roll view opens with Track 1 staged for MIDI recording through an external MIDI device. Identical to **Realtime > Record** in **MIDI View**.

6.3.7 Karaoke View

Push to enter Karaoke playback environment.

6.3.8 MIDI View (**Ctrl + I / Cmnd + I *for Mac***)

Push **MIDI** button to view score in MIDI environment. Use also to change from one MIDI view to another; e.g. to change from Overview to Piano Roll view. Choose Overview or Piano Roll or Event List for a selected Part. Same as **View > New MIDI View**. ENF view remains open until or unless recording is initiated. To revert back to ENF view, close the open MIDI view.

6.3.9 Tiling

Viewing several displays of your score can be extremely useful. It is possible to view several MIDI and ENF views simultaneously.

- Push **Tile** button to display all open TIF/ENF views along with any open ***MIDI Overview***, ***Piano Roll*** or ***Event List*** views. This is identical to selecting the **Window > Tile** menu.

FIGURE 6 - 5: Tiled view (typical)

6.4 Transposition

SmartScore offers several types of transposition depending on your needs. You can transpose by **key**, the most common type of transposition. Transposing by **clef** is useful for transforming parts to instruments written in another clef sign. It is also most helpful for rewriting transposed instrument parts for other transposed/non-transposed instruments. You can also choose to transpose by altering note pitches only, either considering the active key signature or by ignoring the active key signature. Using the **Limit** option, you can choose a specified range, part or voice to transpose.

NOTE: It is recommended that you carefully edit your score before transposing. If your score contains incorrect change-of-key signatures and/or guitar fret and chord symbols, they will be transposed to "who-knows-where". Remember too that it may become difficult to refer to the original score for visual editing clues after transposing.

To Transpose your entire ENF document to a new key,

a. Position your cursor inside the first staffline of the score. Press **Ctrl + T / Cmnd + T** for *Mac* or select the **Transpose** button in the SmartScore Toolbar or select **Transpose** from the **Edit** menu. The window in Transposition always displays the key signature or clef sign of the *active staff*. This is your source key.

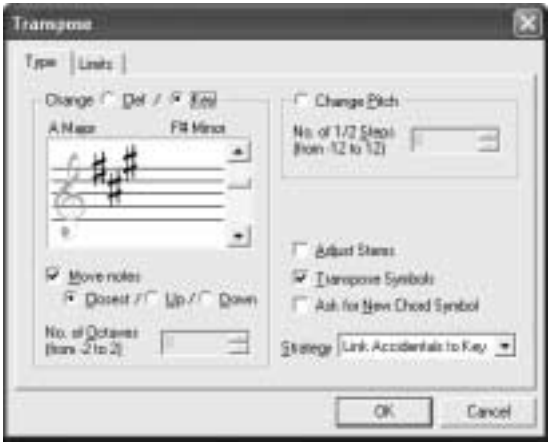


FIGURE 6 - 6: Transposition window

b. Select a new target key or target clef for the score by selecting either the **Key** or **Clef** tab. Scroll up or down to select a target key signature or target clef.

c. **Closest** allows SmartScore to automatically choose up or down based on the least number of intervals. To choose the direction manually, select either **Up** or **Down.**

6.4.1 Transposition Strategy

You can choose two "strategies" for transposing your scores: ***Link Accidentals to Key*** and ***Keep Line-space***.

- **Link Accidentals to Key**

This choice will consider the target key signature during transposition. If the target key belongs to the opposite class than that of the source key (e.g. transposing from a key with sharps to a target key with flats), then accidentals may be swapped to their harmonic equivalents.

- **Keep Line-Space**

This choice will retain exact relationships between intervals after transposition is completed. Accidentals will generally remain fixed. No attempt will be made to swap harmonic equivalents of accidentals. For example, c and d# may transpose up to c# and d double-#.

- **Transpose Symbols**

To transpose guitar fret and chord symbols to match the new target key, check this box. This selection will also move articulations, such as slurs, up or down along with notes and rests. If necessary, guitar fret and chord symbols may move up to avoid collisions with upwardly-transposed notes.

- **Ask For New Chord Symbol**

This option allows you to accept or change each transposed guitar fret and chord symbol during transposition. Use this option when you know you won't accept default fretboard patterns or when you know you will need to add new fret and chord symbols to the library.

- **Adjust Stems**

Stem directions will be maintained unless this box is checked. It is important to remember, however, that adjusting the direction of stems may create voicing problems. Check results before accepting. Undo (**Ctrl + Z / Cmnd + Z** for *Mac*) if necessary.

- **Move Notes**

Uncheck this box to leave the notes in their original positions. This will transpose only key signatures, leaving notes unchanged... good for mental games, but not much more.

- **Change Pitch**

This transposes notes without changing the key signature. Select the number of half-steps to move selected notes (harmonic pitch shift). Pitches are moved by a uniform interval while considering the key signature. Change Pitch can be used in conjunction with Transpose Limits.

TIP: To shift the pitch of a small range of notes, it is easier to use the **Select** tool (**O**). Click-drag to highlight the range of notes. Then, while holding the **Shift** key down, drag the selected notes up or down.

6.4.2 Limit Transposition

You may limit transposition to a part or voice or to a selected range within the ENF score.

To limit transposition by part, voice or range,

a. Click on the **Limit** tab at the top of the Transposition window.

FIGURE 6 - 7: Limit Transposition

b. Choose **All Parts**, or select individual parts by name to transpose. If you select a single part, you may also limit the scope of transposition to a single voiceline. In the **Part Voice** box, select the voice to transpose.

c. To limit transposition by range, choose **Selected Area** (range must already be highlighted by the Select tool) or by **Measure** number.

d. Click **OK** to transpose with selected limits applied.

6.5 System Manager

Use the System Manager to add or delete parts, change part names, apply visibility to parts and voices, extract parts and voices, assign MIDI instrument sounds to parts and voices and to control staff and system spacing. The System Manager displays information about what is found in the active system (the highligted system). A special display called the Super System which is a sort of “mother system” is also accessible. (See “Active System vs. Super System” on page 90 for more details). Changes made can be applied to the current system, current and following systems, active Score-Part or to the entire score.

FIGURE 6 - 8: System Manager

To open the System Manager,

a. Position the mouse pointer over a given system in the ENF view.

TIP: To verify an *active system*, go to **View > Show Active Staff**.

b. Press (**Ctrl+M / Cmnd+M**) or select **Edit > System Manager** from menu. All parameters of the *active system* will be displayed including part name, visibility, instrument and staffline, staff and system spacing.

Parts run vertically along the left column along with checkmarks that identify whether they "exist" in the active system. Voices run horizontally.

6.5.1 Part Names

Part Names in System Manager are directly linked to instrument **Names** in Instrument Templates. When a **Part Name** is selected in the System Manager, all playback parameters are derived from Instrument Templates. See "Instrument Templates" on page 101 for additional information.

To select a Part Name,

a. Highlight a part by clicking on the black dot next to its name. Choose a desired instrument in **Part Name** column. Notice that MIDI instruments for each voice become updated.

b. If you wish to add a new part name with a unique MIDI instrument assignment, select "**Add New Part**" from the top of the pull-down list. This will open Instrument Templates and allow you to add a new template, name it and assign any MIDI instrument to it.

6.5.2 Assigning MIDI Instruments to Voices

Voices inherit MIDI instrument assignments from Instrument Templates initially. You can change MIDI instrument assignment for voices (in Voice mode) or parts (Part mode) in the System Manager or Playback Console.

TIP: Assigning each voice a different MIDI instrument adds richer sound texture and helps in hearing "inner voicings" of the music. Highly recommended for classes in composition.

NOTE: Playback Console and System Manager are linked. Changes made to MIDI instruments in one environment will update the other. MIDI instrument assignments in Instrument Templates are not changed automatically. They can only be changed manually.

To change MIDI instruments for voices in System Manager,

- In System Manager, click on any voice of any part and select a new MIDI instrument in the pull-down menu.

NOTE: In Playback Console, select a channel (voice color and number) and choose a new MIDI instrument from pull-down menu.

6.5.3 Part visibility

Checkmarks along the far left column identify which parts SmartScore thinks are visible in the active system; they can be turned on or off. Individual parts and/or voices can be isolated or they can be "removed" from a score by selective use of Visibility. Selected parts or removed (un-selected) parts can be extracted to new files without altering the original document.

To change Part Visibility,

a. Check or uncheck the Visibility box next to a Part Name to restore or remove visibility of that Part.

b. Select Visibility in the **Apply** field and choose a scope from the "Apply To" pull-down menu. See "Applying changes to the score" on page 100 for details on "Apply To" options.

c. Push **Apply** to apply to the current document or **Apply to New** to extract part(s) to or remove part(s) from a new ENF document.

6.5.4 Voice visibility

To change Voice Visibility,

a. Highlight a visible part by clicking on the dot next to *Part Name*.

b. Check or uncheck the Visibility box below the desired voice.

c. Select "Visibility" in the **Apply** field and choose a scope from the "Apply To" pull-down menu.

d. **Apply** changes the open file. **Apply to New** creates a new ENF file.

TIP: Part and voice extraction/removal can also be controlled in an entirely different way by using the **Score Structure** feature. See "Score Structure" on page 97 for more details on how to isolate, recombine and/or remove parts and voices from a score.

6.5.5 Applying changes to the score

Changes you make to System Manager will apply to the area of interest you select in the "**Apply To"** pull-down menu:

- **All**

Applies the change to all systems of the score (including Super System). Used when you want a change to be globally applied.

- **System**

Applies only to the currently active system.

- **System+**

Applies to the currently active system and all subsequent systems.

- **Score/Part**

Applies to the Score or Score-Part, but not the Super System.

- **Super System**

Applies changed values only to the Super System.

To apply changes,

- **OK**

Applies changes to the current ENF document.

- **Apply**

Applies changes and allows further editing in System Manager.

- **Apply to New**

Creates and opens a new ENF document with changes applied to it. This action does not affect the original document which remains open behind the newly-created ENF document (Minimize window of top-most document to view other open ENF files.)

TIP: **Apply to New** is useful when you want to extract parts or voices to a new ENF document without affecting the original.

Controlling System will determine whether selected values apply to the active system or to the Super System. Since the active and the Super System may have completely different values, changes you make to the score are controlled by which you controlling system you select.

- **Controlling System = Active** is used for most local and global edits.
- **Controlling System = Super** is used to add or remove parts from the score. See "Active System vs. Super System" on page 90.

6.5.6 Adding Parts to Score (The Super System)

*To add new part to a score (**System Manager > Super System**),*

a. Change **Controlling System** to ***Super***.

b. Click dot to highlight any part and select **Insert Above** or **Insert Below**, to position new part relative to existing parts.

c. Select **Apply to: All**.

d. To make new part visible throughout entire score, change **Controlling System** = **Active**. Or select an alternative "Apply To" option.

e. Insert check next to Part Name and check **Visibility** in the *Apply* area and select **Apply** then push **OK**.

*To remove any part from a score (**System Manager > Super System**),*

a. Click the dot corresponding to the part you wish to remove.

b. Make sure **Apply to: All** is selected. Push **Remove**

6.6 Instrument Templates

Basic characteristics of all parts (ENF staves) are inherited from Instrument Templates. These include name, abbreviation, MIDI instrument, playback transposition and color (when **Color = Part** mode). When an instrument is selected from the **Part Name** pull-down menu in the **System Manager**, it is directly linked to the same name and its assigned characteristics in Instrument Templates. Any or all of these characteristics can be changed at any time.

To open, modify or add a new instrument template,

a. Hit (**Ctrl+F**/**Cmnd**+**F**) or choose **Edit > Instrument Templates**.

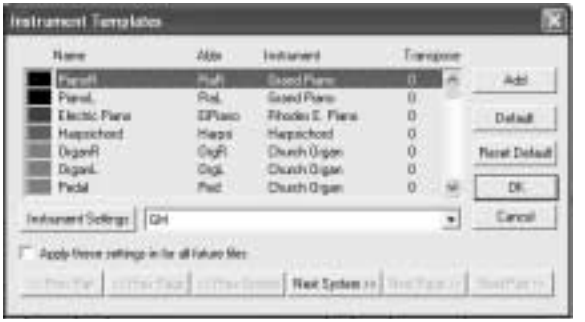


FIGURE 6 - 9: Instrument Template window

b. Instrument color can be changed by double-clicking in its color field. When **Part = Color** in **Options > Color Mode**, notation for parts associated with this instrument will inherit this color.

c. Click in the **Name** field of any template and type to change the given name of an instrument.

d. To change an abbreviation, click then type inside the **Abbr** field.

e. Click and select a different MIDI instrument from the **Instrument** list to change default MIDI instrument assignment.

f. **Transpose** displays the default playback transposition for selected instruments. The MIDI representation *will* reflect the transposed shift in pitch.

g. Various sets of MIDI instruments can be selected in **Instrument Settings** pull-down menu. Instrument sets acquire their names by clicking on the **Instrument Settings** button and selecting a set.

h. To save settings for future ENF files, check "**Save for Future**".

6.6.1 Transposed Instruments

Because ensemble instruments have such wide pitch ranges, it is necessary for transcribers to notate certain instruments in key signatures that are remote from others in the ensemble. Players of transposed instruments "read" and "transpose" naturally without worrying that the part they are reading is actually out of tune! In order for an ENF score with transposed instruments to play back correctly, transposition of playback by specified amounts must be set. This is accomplished for preset instruments in the **Instrument Templates** but it is also possible to compensate for transposed instruments in the **Playback Console**.

6.7 Working with Voices and Colors

SmartScore uses 2 main color modes for viewing your music as well as for controlling how MIDI data is handled: **Color by Part** or **Color by Voice**. Each mode will change certain characteristics of how the notation is displayed and how parts and voices are assigned to MIDI channels. Changing the color mode of an open ENF document can be done at any time. Nothing is lost by switching back and forth between color modes.

To select or change the color mode for an open ENF score,

a. Choose **Options > Color Mode > Voice** to color by *voicelines*.

b. Choose **Options > Color Mode > Part > Color** to color by *part.*

c. Choose **Options > Color Mode > Part > Black** to color all parts in black.

NOTE: To quickly toggle between viewing voices in different colors or all in black, push the **Voice Color** button in the SmartScore toolbar or select **Options > Define Colors > Voices.**

6.7.1 Options > Color Mode > Voice

The following table describes the relationships between color modes and how parts and contrapuntal voices are assigned to MIDI channels.

Table 2: Parts and Voices and their MIDI equivalents

Options > Color Mode =	MIDI Tracks	MIDI Channels
Voice	Each Staff = One Track	Each **Voice** = One Channel 4 Voice-channels per Track
Part > Black **Part > Color**	Each Staff = One Track	One Voice per Track.

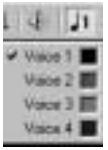
In **Voice** mode, contrapuntal voices display as one of four colors (Voice 1= black, Voice 2 = red, Voice 3 = green and Voice 4 = blue). Voicelines can then be extracted in either **System Manager** or in **Score Structure**.

In **Voice** mode, each contrapuntal voiceline is assigned a unique MIDI channel. This allows you to control each voice's Volume, Balance and MIDI instrument in the **Playback Console**.

6.7.2 Overriding automatic voice colors

Voice colors are assigned automatically, but can be manually overridden.

To override default voice color of a note or rest (change voice number),



a. Select desired voice number (and color) from Voice Tool combo button in the SmartScore Toolbar.

b. Locate the note or rest for which you want to change voice color.

c. Click on the note or rest to change it to the selected color and voice.

TIP: When editing a measure containing multiple voices, voice colors may change to green and blue as you insert or delete notes and rests. Ignore these changes until the entire measure is fully edited. Once edited correctly, colors should appear normal; that is, mostly black (Voice 1) and red (Voice 2).

NOTE: Ties between notes belonging to different voices will not sustain during playback.

6.7.3 Options > Color Mode > Part

In **Part** mode, all notes within a staffline become assigned to a single MIDI channel; stem directions, vertical events and other characteristics that differentiate contrapuntal voicelines are ignored. In **Color by Part** mode, each staff assumes a unique color as defined in Instrument Templates. This is most useful in orchestral scores that contain one part per staff, allowing for quick visual referencing of each instrument by its color.

*To change default staff colors when **Color Mode > Part > Color**,*

a. Select **Options > Define Colors > Part Color**

b. **Instrument Templates** will open. Double-click the color of a given part and choose a new color you want associated with that part. Push **OK**.

6.7.4 Changing colors of hidden symbols and backgrounds

To change the default background color of the TIFF or ENF window,

a. Select **Options > Define Colors > Background**

b. Choose either *Image Pane* or *ENF Pane*.

c. Click to select a new color and push OK.

To change the default color of Hidden Symbols,

a. Select **Options > Define Colors > Hidden Symbols**

b. Choose a new color and push **OK**.

6.7.5 Voice Splitting (H)

To separate a two-note cluster to two separate voices,

a. Hit the "**O**" key to activate the Select tool.

b. Drag a box around any number of two-note clusters.

c. Press the "**H**" key to separate two-note clusters into 2 voices.

FIGURE 6 - 10: Splitting two-note chords into 2 voices

TIP: **Music ministers and choir directors:** Use this handy tool to split two-note clusters into 2 voices (e.g. hymnals). Assign each voice a unique instrument or extract each voice to a separate file.

TIP: If you wish to split clusters containing three or more notes, select and delete the least desirable notes until you are left with two notes in each cluster. Only two note clusters will split.

6.7.6 Cross-staff voicing

Occasionally, notes of a voice go and "visit" an adjacent staff. Even though notes that visit technically belong to their "home" staff, they obtain their pitch information from the staff they are visiting. In order to maintain voice continuity, such visiting notes must be handled in a special way.

To create cross-staff voicing (making notes "visit" an adjacent staff),

a. If the visiting note is part of a beamed group, use the Shift button then click and drag the notehead up (or down) to the adjacent staff. Position it over the line or space you wish its actual pitch to be.

NOTE: Notes that "visit" adjacent staves do not display any ledger lines. They inherit their pitch from the space or line of the "visited" staff.

b. If the visiting note is stand-alone (not part of a beamed group), choose whether you want the cross-staff indicator lines to be solid or dotted (**View > Cross-staff Voicing > Solid or Dotted**).

c. Drag the notehead up (or down) to an adjacent staff and position it over a line or space. The visiting notehead will inherit that pitch.

Cross-staff voice (single note) Cross-staff voice (beamed note)

FIGURE 6 - 11: Cross-staff voicing

d. To access a cross-staff note, position the mouse pointer over the home staff of the visiting note. Hold the Ctrl button down and locate the notehead of the visiting voice. **Shift + drag** to alter pitch.

TIP: Holding the **Ctrl** button down always keeps the active staff and its system selected. This is useful when accessing the **Edit** menu to add / remove staves and systems or to open the System Manager.

6.7.7 Cross-measure beaming

To create a cross-measure beam,

a. Insert a right-beam note and a left-beam note on either side of a barline.

b. Use the **Select tool** to highlight both notes and hit the "**B**" key.

6.7.8 Overlapping or offset noteheads

Often two notes of different voices share the same pitch at the same time. You can choose whether you want note heads of different voices to overlap one another or to become offset next to each other. To allow overlapping note heads, check off "**Overlap Notes**" in the **Options / Overlap** menu. Playback will not be affected whether note heads are offset or overlap.

6.7.9 Swapping positions of offset notes

The relative orientation of offset notes can be swapped if necessary.

To swap the horizontal positioning of offset notes,

a. Use the Select tool to highlight two offset notes belonging to different voices in the same vertical event.

b. Hit the "L" key to swap note positions.

6.8 Playback Console

FIGURE 6 - 12: Playback Console

The Playback Console controls tempo, transposition, muting, soloing, volume, panning and MIDI Instrument assignments to parts (when **Options > Color Mode** = **Part)** or to voices (when **Options > Color Mode** = **Voice)**.

To open the Playback Console,

- Select the speaker button from the SmartScore Toolbar. Or hold down **Ctrl+9** (Win) / **Cmnd+9** (Mac) or select **Console** from Playback menu.

*The first column, **Track**, lists the MIDI track assigned. The second column, **Ch/V** lists the MIDI **channel** number within a colored box representing one of 4 possible **voices** (black, red, green and blue). W*hen **Options** > **Color Mode** = **Part** only tracks will be displayed. If **Options** > **Color Mode** = **Voice** is selected, all tracks and all voices will be displayed.

TIP: When **Color Mode** = **Voice**, each voiceline becomes assigned to a discrete MIDI channel. That is why you may see many channels within one MIDI track. To reduce the number of channels to equal the number of stafflines found in ENF, change **Options** > **Color Mode** to **Part**.

- If changes are made to MIDI instrument assignments the System Manager will become updated. Changes to other parameters will be stored as MIDI data for the ENF file.

The default MIDI instrument sets are General MIDI Instruments and General MIDI Drums.

To reassign MIDI instrument sets,

a. Push **Set** button next to Instrument column header.

b. Choose Instruments or Drums tab and select from preset list.

c. Push Custom to reassign to external names if required.

6.9 Hidden Symbols

Hidden symbols displays every possible object in the ENF display. Certain markings such as the range of a **8va, 8vb, ritard**, **accelerando** or **decelerando** are only visible when Hidden Symbols is active. You may want certain notation objects to be applied to playback, but at the same time, you may not want these symbols to be visible. For example, you may need to insert rests to “fill out” a given voiceline in a measure, but you do not want these “placeholder” rests to be printed.

To insert a hidden notation object,

a. Push the Hide/Show Symbol button in the Text and Controllers toolbar. Insert any notation object normally. Symbols entered in Hidden Symbols will appear as a brown color.

To view ranges of dynamics and tempos,

a. Push the Hide/Show Symbol button. Dynamics or tempos which were applied to a range of notes will appear as follows:

FIGURE 6 - 13: Hidden range of an accelerando

Push again to exit Hidden Symbols mode. “Hidden” symbols do not appear in normal mode and will not print.

6.9.1 Changing Voice assignments in Hidden Symbols

You may find that it is necessary to change the assigned voice color (and number) of a hidden symbol after it is entered. If so, simply use the Voice Color tool found in the SmartScore toolbar. Notes and rests with changed voice assignments will remain invisible after you exit Hidden Symbols.

To override voice numbers in Hidden Symbols,

a. Select the proper voice color and number from the Voice Color tool.

b. Click on the entered note or rest to change its voice number and color.

NOTE: In Hidden Symbols mode, voice colors display differently than in normal edit mode:
Voice #1 = Grey, Voice #2 = Purple, Voice #3 = Yellow, Voice #4 = Aqua

To change the default color of Hidden Symbols,

a. Select **Options > Define Colors > Hidden Symbols**

b. Choose a new color and push **OK**.

6.10 Dynamics, Articulations and Tempo Markings

NOTE: Dynamic, Articulation and Tempo markings affect ENF playback and change the resulting MIDI file. Playback properties of individual markings may be adjusted singly or globally with the use of the Properties Tool. See 6.11 on page 115.

- Dynamic markings affect the volume of a range of notes in the active staff (MIDI track) to which they are entered.
- Articulation markings, such as trills, staccatos, tenutos, arpeggios, glissandos and mordents are note-specific.

Tempo changes are global and affect the entire system.

6.10.1 Tempo Markings

To insert a tempo (metronome) marking or change-of-tempo mark,

a. Select the **Metronome** mark button from the bottom of the "Tempo" palette.

FIGURE 6 - 14: Tempo (metronome) window

b. Select a new tempo and baseline note value. Tempo selection ranges from 30 bpm (***Lento***) to 240 bpm (***Prestissimo***).

c. In Insert mode, click anywhere above the topmost staff of a system to insert mark. Tempo will adjust accordingly at that point.

To edit a metronome or change-of-tempo mark in the score,

a. Push the Properties Tool in the Main toolbar.

b. Click on a metronome mark in the score to open tempo window.

6.10.2 Dynamics, Hairpins, Crescendos and Decrescendos

To Insert a Dynamic marking,

a. While in the **Insert** mode, select a dynamic marking from the "Dynamics" palette.

b. Click anywhere in the Active staff. A change in playback volume for the active staff (MIDI track) then will apply.

c. Changes in note velocities range as follows:
pppp = 35 / ***ppp*** = 45 / ***pp*** = 55 / ***p*** = 65 / ***mp*** = 75

mf = 85 **/ f** = 95 / **ff** = 105 / **fff** = 115 / **ffff** = 125.

NOTE: Dynamics apply only to the active staffline. To apply dynamics and/or dynamic markings to more than one staff, enter the dynamic in each part in which you want the effect to apply. If you do not wish to have multiple dynamics visible, you may enter dynamics in the Hidden Symbols mode. For more details see "Hidden Symbols" on page 108.

To insert a hairpin,

a. Toggle the "**C**" key to the **Insert** mode.

b. Select a dynamic hairpin from the "Dynamics" palette or hit **Shift + ","** for crescendo hairpin and **Shift + "."** for decrescendo.

c. Click and drag to select notes for which a hairpin is to be applied.

d. Dragging downward will insert the hairpin below the active staff. Dragging upwards will insert the hairpin above the active staff.

FIGURE 6 - 15: Hairpin crescendo

To insert a crescendo or decrescendo,

a. Select ***Cresc.*** or ***Decresc.*** from the Dynamics tool palette.

b. In Insert mode, click and drag the mouse to highlight the range of notes over which you wish to apply the dynamic change.

FIGURE 6 - 16: Inserting a crescendo marking

c. Dragging downward while selecting the range of notes will insert the marking above the staffline. Dragging downward will insert the marking below the staffline.

NOTE: Playback properties of articulations and dynamics may be changed using the Properties too. See “Properties Tool” on page 115.

To delete a dynamic or tempo marking,

- Press the “**X**” key and click on the marking. An alternative to using the **X** key is to use the Select tool (“**O**” key), highlight the mark and hit **Delete**.

6.10.3 Articulations and Trills

Articulations affect the playback of selected notes. These include slurs, turns, fermatas, mordents, trills, accents and tremolos. For a complete description of each articulation’s playback function, turn to "Articulations", Section 9.1.2, on page 160.

To insert a legato (slur)

- Push the Legato button in the Articulation palette.
- Drag to select range of notes to be associated with the legato. Dragging downward places the legato above notes. Dragging upward positions legato under the notes.

To insert turns, fermatas, accents and mordents,

Turns, fermatas, accents and mordents can be positioned near the top of a note head or near the tip of note stem.

- Select the articulation.

- Click on a note head to insert the articulation above the note head.
- Click on a note stem to insert the articulation at the tip of the stem.

To delete a turns, fermata, accent or mordent,

- Select the articulation to delete. Press the "**X**" key, and click on the notehead or stem of the associated note.

To insert a staccato, tenuto or accent,

- Select the articulation.
- Click on a note head to insert the articulation above the note head.

To insert a trill,

- With ***tr*** **(**trill) selected, click on a notehead to insert a single trill.
- To create an "extended" trill, toggle the "C" key to enter Change mode. Click and drag horizontally to select a region. The length of the extension is determined by how far you drag the mouse.

To insert an extended trill

a. Insert the trill to a given note as described above in *To insert a trill.*

b. Hit the "**C**" key to enter Change mode. With the right mouse button down (***alt*** key down for *Mac*), drag a box extending from the trill along the length you wish the extension to appear.

Trills can play back either up from the source note or downwards from the source note.

To choose whether a trill plays up or plays down

a. Go to **Playback** menu and from the item, **Trill**, select either **Up** or **Down**.

To insert a tremolo,

a. Select one of four tremolo values from the palette; single, double, triple or quadruple.

b. Click on the head of the note to apply the tremolo value.

To insert an arpeggio,

a. Select the arpeggio button (squiggly line) from the palette.

b. Click and drag the mouse to select a chord cluster (can include more than one voice).

c. Dragging the mouse in an upward direction will cause the notes to arpeggiate in an upward scale.

d. Dragging the mouse in the downward direction will cause the notes to arpeggiate in a downward scale. A down arrow is added.

To insert a glissando,

a. Select the glissando button (two notes with line) from the palette.

b. Clicking on any note will insert a glissando to the following note belonging to the same voice. During play, the *gliss* will be heard.

To delete any articulation,

- Select the specific articulation to delete from the palette. Press the "**X**" key, and click on the notehead of the associated note.

NOTE: An alternative method to delete any articulation is to use the Select tool ("**O**" key), highlight it and then hit the **Delete** key.

6.10.4 Inserting or Deleting Multiple Articulations

Any articulation can be applied to multiple notes at one time.

To assign an articulation to many notes at once,

a. Use the Select tool ("**O**" key) then drag to select a range of notes.

b. Select the articulation to be applied to all highlighted notes and insert it to any note.

To delete all articulation marks and slurs in a selected area,

a. Use the Select tool ("**O**" key) to drag a box around the area you wish to remove articulations.

b. Once the area is selected, hit the "**G**" key to delete all articulations in the selected region.

6.11 Properties Tool

The “Properties” tool displays and alters playback values of dynamic and articulation markings. Changes can be applied to the marking itself or globally to all similar markings and applied as new defaults.

To activate Properties Tool:

a. Hit the “**Esc**” button or select the Properties Tool button in the Main toolbar.

b. Click on a listed marking below to open its properties.

NOTE: All object property windows have the following options:

6.11.1 Property Options

- **Apply (changed property) to All:**
  Selecting this option will update playback properties of the same mark throughout the score.
- **Apply Setting(s) to All Future Files:**
  Selecting this option will reset the default value for the property to the new values for all future SmartScore files.
- **Back to Default:**
  This will reset values to ***application launch*** defaults.
- **Reset Default;**
  This will return values to ***new installation*** defaults.

- **Hairpin, Cresc. and Decrsc. Properties**

FIGURE 6 - 17: Hairpin Properties

- 2 Velocity sliders: Start value and Ending value.
- Range: 10 to 127 (Note Velocity)

- **Dynamic Marking Properties**

FIGURE 6 - 18: Dynamic Marking Properties

- Volume slider: Resets the volume for the current part.
- Range: 10 to 127 (General Volume)

NOTE: To view the selected range of accelerando/descelerando, push the “Hidden Objects” button. Range is shown with dotted line.

- **Slur (Legato) Properties**

FIGURE 6 - 19: Dynamic Marking Properties

- Increase duration of notes associated with the slur.
- Percentage - 10 to 50% (MIDI Note Duration)
- None = No increase of note duration

- **Tempo Marking Properties**

FIGURE 6 - 20: Tempo Marking Properties

- **Tempo slider. Resets tempo (Beats per Minute).**
  - Range: 20 to 400 (Beats per Minute).
- **Trill Properties**

FIGURE 6 - 21: Trill. Properties

  - **Fixed duration:** Preset permutations based on SmartScore 2.0.
  - **Variable duration:** Move the slider to the a number which well represent the fraction of the note value to be trilled (1 to 1/32).
  - **Fixed number of divisions:** Move the slider to increase or decrease the number of permutations. The more permutations are generated, the shorter the duration of the trills. (1 to 32 permutations).

- **Metronome / Rhythmic Group Properties**
  - The Metronome and Rhythmic group windows open for editing when clicked with the **Properties Tool**.

6.12 Repeats and Multiple Endings

Many of these markings are recognized automatically. All will be interpreted during playback as described below:

6.12.1 Repeats and repeat symbols

To insert a repeat barline, a repeat measure or any other repeat symbol,

- Toggle the "**C**" key to enter **Insert** mode. Select any repeat or symbol from **Barlines & Repeats** palette and click to place the symbol.

To change any current barline to a repeat barline,

- Toggle the "**C**" key to enter **Change** mode. Click on any existing barline to change it to the selected repeat barline.

To delete a repeat barline,

- Hit the "**X**" key and click on the symbol to delete it.

To insert a "Repeat Previous Measure" mark

a. Select the **Repeat Previous Measure** mark from palette.
b. In **Insert** mode, click into an empty measure.

All notation present in the previous measure will automatically repeat itself during playback.

6.12.2 Multiple Endings

To create a multiple ending,

a. Select the **Start Alternate Repetition** button from the "Barlines & Repeats" palette. Toggle the "**C**" key to enter the **Change** mode.
b. Click on the barline that begins the first ending. Select the number of times you want the section to repeat. The barline will change into a **start-of-ending** bar. The cursor then switches to an

end-of-ending barline with a *left repeat bar* as default. Click on the barline that terminates the first ending.

FIGURE 6 - 22: Multiple Endings

c. This “closes out” the first ending and stages the cursor to enter another (second) ending section.

To create a second or third ending,

d. Select the **Start Alternate Ending** button. Select the number of repeats and click the barline of the first measure of the second ending (usually the same repeat barline that ends the first ending).

e. Click the last barline to close out the second ending.

f. Repeat above steps as necessary for subsequent endings.

NOTE: If the last barline is not a repeat ending, it can be changed. Choose an appropriate barline from the barline palette and **Change** the barline type.

6.12.3 Working with the *Coda*

A **Coda** sign marks the conclusion of a piece. A Coda is generally used to repeat a theme or variation outside repeated endings.

To mark the beginning of a Coda and to insert a “jump to Coda” sign,

a. Select ***Coda*** sign from the Barlines & Repeats palette. In Insert mode, click on the barline where the *coda* is to begin, usually at the end of a repeated section or numbered ending.

b. Select the ***To Coda*** sign and in **Insert** mode, find the point in the *last* passage or ending where playback is to “jump” to the Coda and click the barline where the jump is to occur.

NOTE: The ***Coda*** will not be played back until it is activated by the ***To Coda*** or ***d.s. al Coda*** sign.

6.12.4 Working with the *Segno*

Segno means "sign". It marks the beginning of a final repeat or ending. Segnos are usually positioned early on in the piece, after a repeat.

To mark a final repeat with Segno,

a. Select ***Segno*** from the **Barlines & Repeats** palette.

b. **Insert** the ***Segno*** by clicking the barline that begins the *last* repeated ending or section.

c. To stop a *final* repeat or ending, return to the ***Segno*** and continue on to the ***Coda,*** select ***d.s. al Coda*** (meaning "from the sign to the Coda")

To have a final repeat or ending return to the Segno and play through to the end,

a. Select the ***D.S.*** button from the Barlines and Repeats palette.

b. Click on the desired barline to insert the ***D.S.*** sign.

NOTE: ***To Coda***, ***Segno, d.s. al Coda, D.S., D.C.*** and ***d.s. al Fine*** signs are all ignored until an ending or repeat is played once.

6.12.5 Working with the *da Capo* (*d.c.*), *dal Segno (d.s.), D.C., D.S.* and *Fine* signs

da capo (**d.c.**) means "from the beginning" or "return to the beginning".

To have a final repeat or ending return to the beginning of the piece and play through to the end,

- Select the ***D.C.*** button from the Barlines and Repeats palette.

*To have a final repeat or ending return to the beginning of the piece and terminate at the **Segno** sign,*

- Select ***d.c. al Segno*** (meaning "from the beginning up to the sign") and inset it by clicking on the barline in the last ending or repeat where playback is to return. The repeated section will

return to the beginning of the score and play through to the ***Segno***.

Fine means ending. It is usually placed in the middle of a repeated ending and terminates the song.

*To have the last repeat stop, return to the **Segno** and continue on to the end of the piece,*

a. Insert a ***Fine*** sign by clicking on the barline that marks the final end point.
b. Select ***d.s. al Fine*** (meaning "from the sign to the end") from the **Barlines & Repeats** palette.
c. **Insert** either the ***d.s. al Coda*** or ***d.s. al Fine*** mark by clicking the barline where the *last* repeat is to begin.

*To have the final repeat or ending return to the beginning and play through to the **Fine,***

- Place the ***Fine*** sign at the appropriate barline. Select and insert ***d.c. al Fine*** in a measure *following* the ***Fine*** sign.

D.C. (da capo) will cause play to jump back to the beginning of the piece and continue to the end. Normally put at the last bar of an ending.

D.S. (dal segno) will cause play to jump back to the segno and continue to the end. Normally put at the last bar of an ending.

6.13 Unify Key, Time and Clefs (U)

***Unify** updates key and time signatures as well as clef signs throughout the score based on choices made in the dialog window.*

- Hit the "**U"** key, press the **Unify** button on the Navigator, or select the **Unify Signatures** button in the SmartScore Toolbar or go to **Edit** menu and select **Unify Signatures**.
- Check the **Insert Empty Rests** box to Insert a whole rest into all empty measures.

NOTE: Changing a clef sign does not reposition notes. Note pitches alone are updated by a change in clef. To alter note position by selecting a different clef, use **Transpose (by Clef)** func-

tion. See “Transposition” on page 93 for details of transform functions.

6.13.1 Part Linking before applying Unify

If your ENF score contains collapsing and expanding systems, it is recommended to perform Part Linking before Unifying. Unifying signatures and clefs will maintain part linkages as set in Logical Part Linking. Refer to “Re-link Parts” on page 94 for more details.

6.13.2 Unify Key and Time

FIGURE 6 - 23: Unify Key, Time and Clefs

- Based on 1st system. Parse for changes

All key and time signatures for every part are updated based on signatures found in the first system on the first page. Any changes in key or time signatures are read in and subsequent systems are updated as they are encountered. Use when systems have a consistent number of parts.

- Based on topmost staffline. (Default)

All key and time signatures for every part are updated based on signatures found in the first staffline of each system. Any change-of-key or time signatures found in the topmost staffline will update subsequent stafflines of each system. Use when systems do not have a consistent number of parts.

6.13.3 Unify Clefs

- Parse every measure (Default)

Clefs are updated on a line-by-line basis. Any change of clef encountered in a given staff updates that staffline until another change of clef is encountered. Use when many change of clefs are written into the original score.

- Based on 1st Measure of 1st System

All clef signs are updated based on clefs found in the first measure of the first system. Overwrites any change of clef found. Use if many false change-of-clefs were recognized or if very few change-of-clef signs are found in the original.

6.14 MIDI to ENF

SmartScore accepts any Standard MIDI file and converts it to an ENF file.

To create and ENF document from a MIDI file,

a. Select **File > Open** and change the filetype pull-down menu from **SmartScore Files** to **MIDI files**. All MIDI files in the given directory will appear in the selection window. Double-click on a selected MIDI file to open.

b. The Playback Console window will appear with a MIDI Overview representation in the background. To hear the file playback, push the **Play** button in the console.

c. To convert the MIDI file into SmartScore notation, push the **Close** button in the Playback Console. Closing the console will begin the conversion process.

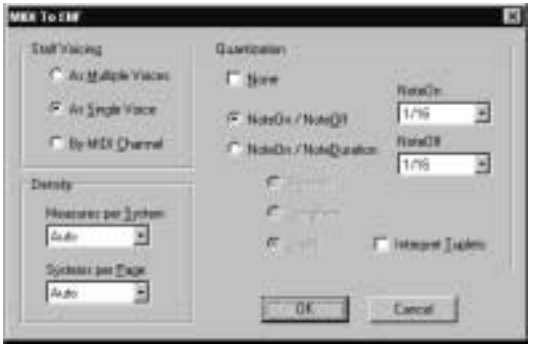


FIGURE 6 - 24: MIDI to ENF window

Staff Voicing

Choose whether or not you want SmartScore to attempt to interpret note events of each track into polyphonic voices by choosing either *Single* or *Multiple Voices.*

- If the MIDI file has multiple tracks (Type 1) select ***As Single Voices.*** This choice will create an ENF document without attempting to interpret polyphonic voices. This is choice is usually recommended.
- If the MIDI file has multiple tracks (Type 1) and complex voicings in each track (intricate piano or guitar duets for example), choose ***As Multiple Voices***. Selecting *As Multiple Voices* will create an ENF document with more than one polyphonic voice per staff. This option forces SmartScore to make some particularly difficult choices.
- If the MIDI file contains only one track with 2 or more channels per track (MIDI Type 0), then select Staff Voicing = By MIDI Channel. This will separate every MIDI channel into discrete ENF staves. Multiple voicings are ignored and events become joined to single voicelines within the new ENF document.

Density:

- **Measures per System** determines the number of evenly spaced measures per system.
- **Systems per Page** determines the number of evenly spaced systems per page.

Quantization

SmartScore can quantize the MIDI file that will be converted. Each note event will “snap to” the nearest beat boundary eliminating fluctuations in the timing of a MIDI performance.

Be forewarned, however, that MIDI files created with “free tempo” (rubato) will probably have many irregular note divisions and odd-looking timing as SmartScore attempts to “compartmentalize” notes “off--the-beat”.

- Check **None** to prevent the application of quantization.

- Use **Note On/ Note Off** to determine the smallest rhythmic values used to when spelling note start times (**Note On**) and end times (**Note Off**) in the ENF document.
- Use **Note On/ Note Duration** to determine the smallest rhythmic values used to when spelling note start times (**Note On**) and the minimum length of each note (**Note Duration**) in the ENF document.
    - **Shorten** each note to the last **Note Duration** value.
    - **Lengthen** each note to the next **Note Duration** value
    - **Justify** each note to the nearest **Note Duration** value.

Interpret Tuplets

- SmartScore will attempt to create tuplets when MIDI events form appropriate rhythmic groupings. Check the **Interpret Tuplets** box to activate this decision-making algorithm.

6.14.1 Troubleshooting ENF Problems

Table 3: Troubleshooting ENF Problems

Problem	Probable Cause	Fix
Notes and symbols appear as large letters.	Font association lost.	Reinstall Chopin04 font. Font is located in the main SmartScore directory.
“MMSYSTEM008 Device is in use.”	MIDI Out port is not available to SmartScore due to another open MIDI application.	Close any other MIDI applications other than SmartScore.

QuicK Keys Map (Windows)

FIGURE 6 - 25: Quick Keys Map (Windows)

QuicK Keys Map (Mac)

FIGURE 6 - 26: Quick-keys Map (Mac)

Chapter 7 MIDI Editing and Sequencing

7.1 Relationship Between ENF Notation and MIDI Editors

7.1.1 Updating and refreshing playback and display

It's important to understand the difference between the ENF and MIDI displays. ENF notation always updates the MIDI display. But the MIDI display does not update ENF notation. Raw MIDI data can only be displayed as ENF notation when it is reintroduced into a new ENF document. This is because MIDI data lacks all information about page layout, stem direction, voices, etc. MIDI data is *time-based* while ENF notation data is *graphical* and contains much more visual information of the music. Changes made in the MIDI environment can be heard during ENF playback but the ENF graphical representation remains unchanged. You can modify data in MIDI view, return to ENF view and still retain changes made in MIDI by using the **PLAY** button in the play console. It is always possible to return to ENF display-only for playback by selecting **Playback > Refresh MIDI** or by using the **Spacebar** to play. The following table attempts to clarify the relationship between ENF and MIDI views.

Table 4: ENF View and MIDI View Relationships

ENF to MIDI	MIDI to ENF	ENF View	MIDI View
DISPLAY		PLAYBACK	
MIDI View is automatically updated	ENF View is NOT automatically updated	ENF <-> MIDI (Updates Both Ways)	ENF -> MIDI (Updates One Way)
TO UPDATE DISPLAY ---------- TO UPDATE PLAYBACK			

Table 4: ENF View and MIDI View Relationships

ENF to MIDI	MIDI to ENF	ENF View	MIDI View
DISPLAY		PLAYBACK	
Select **MIDI** in the **Navigator** or **View > New MIDI View**	Select **View > Convert MIDI to ENF**	Spacebar = **Refresh MIDI**. Play button = **Refresh MIDI.**	Refreshes MIDI: **Close** MIDI view**,** return to ENF, push **MIDI** again.

To sum up,

- Changes in ENF view automatically update MIDI display.
- Changes in MIDI view update ENF playback only, not its display.
- In MIDI view, choosing **View > Convert MIDI to ENF** will create a ***new*** ENF document based only on MIDI file data.
  NOTE: Page formatting will be lost in the new ENF document, but the source ENF document will remain open and unchanged.
- Closing all MIDI views (using icons at left) will return display to ENF notation view and keep changes made in MIDI environment.
- In ENF view, **Playback > Refresh MIDI** updates playback based on the current ENF display only. MIDI Refresh is performed whenever an ENF file is opened or when the spacebar is used for playback after MIDI editing. Select "**Save As MIDI**" to save current playback as a MIDI file. Choose "**Keep MIDI**" to ignore refresh and temporarily retain changes made in MIDI environment. Choose "**Refresh and Continue**" to discard changes made in MIDI and refresh playback based only on ENF display.

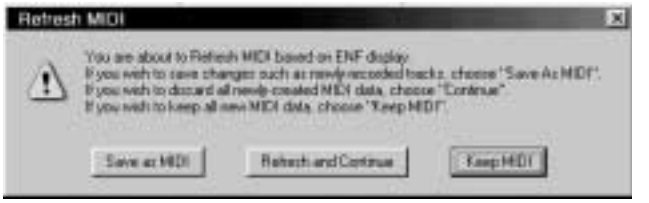

Refresh MIDI
You are about to Refresh MIDI based on ENF display.
If you wish to save changes such as newly recorded tracks, choose "Save As MIDI".
If you wish to discard all newly created MIDI data, choose "Continue".
If you wish to keep all new MIDI data, choose "Keep MIDI".
Save as MIDI
Refresh and Continue
Keep MIDI

FIGURE 7 - 1: Refresh MIDI based on ENF display

- Changes made in MIDI will be kept in ENF playback until MIDI Refresh is activated either by hitting the spacebar for playback or when closing and reopening the ENF file. The Play button in the Mini Console and Playback Console will NOT activate MIDI Refresh. Remember: Reopening an ENF file refreshes MIDI. The rule of thumb for keeping merged MIDI and ENF data is:

  "Perform MIDI Editing Last - Then Save As MIDI"

7.1.2 Parts and Voices to Channels and Tracks

SmartScore is designed to map ENF parts and/or voices to MIDI tracks depending on which Color Mode is selected: Part or Voice. For more about color mode of parts and voices, see "Working with Voices" on page 37.

7.2 Opening, Changing and Closing Multiple MIDI Views

There are three ways to display MIDI data in the MIDI Editor: Overview, Piano Roll and Event List.

7.2.1 Opening MIDI views

To enter MIDI environment from ENF and to select or change a MIDI view,

a. Press the **MIDI** button in the Navigator or choose **View > New MIDI View** (**Ctrl +I / Cmnd+I** (Mac)).

The New MIDI View Window will open.

FIGURE 3 - 2: New MIDI View

b. In the **Type** window, select the type of MIDI view desired, **Overview** (display all tracks), **Piano Roll** (display detail of one track) or **Event List** (display all MIDI events in all tracks).

7.2.2 Changing MIDI Views

The MIDI toolbar (**View > Toolbars > MIDI Toolbar**) includes buttons for opening new **Overview**, **Piano Roll**, **Event List** windows. The Shuttle Tool, Record, Record to New Track and Virtual Drum Kit are also visible.

FIGURE 3 - 3: MIDI Toolbar

You can also change to a new MIDI view by pressing MIDI in the Navigator. Views do not replaced. Each new view overlays all open views.

7.2.3 Closing MIDI Views

Each MIDI view (Overview, Piano Roll and Event List) has its own “close” icon in the upper left-hand corner. To close current MIDI view window, click into the “close” icon and select “Close”. Or select **File > Close**. Last closed MIDI view will return display to ENF notation view.

7.3 Track Overview

Overview provides a “bird’s eye view” of all existing MIDI tracks. Some editing functions are limited

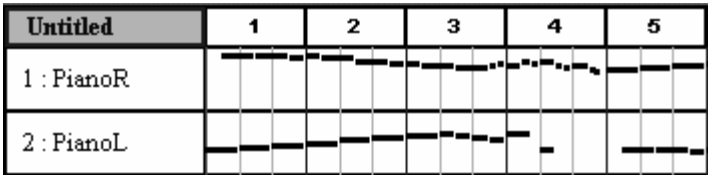


FIGURE 3 - 4: Track Overview window

7.3.1 Selecting tracks and MIDI events

Clicking into a track's Name field in Overview will highlight the entire track for cutting/pasting/shifting. Double-clicking into a track's Name field will open its Piano Roll view. Right-click (**option + click** *Mac*) in the Name field will open the Track Properties window.

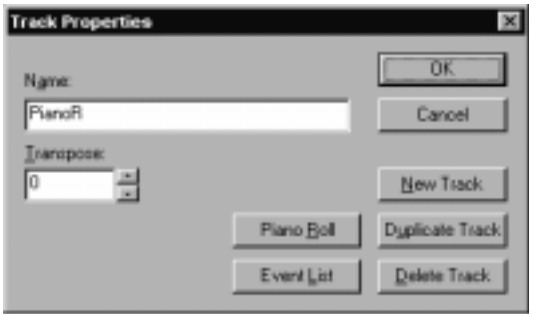


FIGURE 3 - 5: Track Properties

The Track Properties window allows for editing of the Track Name and its Transposition. It is also used to create new MIDI tracks. Push Piano Roll or Event List buttons to view selected track in one of these views.

NOTE: The Transpose selection window will actually move all the note events of the selected track by half steps.

- New Track will create an empty new track.
- Selecting Duplicate Track will create an exact copy of the active track and insert it at the bottom of the track listing.
- Delete Track will erase the highlighted MIDI track completely.

To zoom in and out in Overview and Piano Roll,

- Use the magnifying glass in the MIDI toolbar. Click to zoom in. Right-click (**option + click** for *Mac*) to zoom out.
- Drag zoom will magnify events either horizontally or vertically. To zoom vertically, drag any piano key divider (Piano Roll) or track divider (Overview) upwards or downwards. To magnify events horizontally, drag a measure bar division in the track header left or right.

FIGURE 3 - 6: Drag Zoom in Piano Roll and Overview

7.4 Playback

7.4.1 Spacebar

- Press the spacebar to Play. Press again to Pause. Press again to resume Play. Press the comma key (“,”) to Rewind to the beginning.

7.4.2 Mini-Console

The Mini-Console is a dockable (tear-off) toolbar that plays, records, rewinds and stops playback.

The “spring-loaded” tempo slider will increase or decrease tempo speed depending on the distance it is pulled from the center. Releasing the mouse will return playback tempo to the default speed.

- *Play* button initiates/resumes playback of the active MIDI file. Once playback has begun, the Play button becomes Pause. Use this button to retain MIDI data after returning to ENF display.

- *Pause* will stop playback without rewinding to the beginning of the score. Hitting Play again will resume playback.

- *Stop* button stops playback/recording of the MIDI. Play/Record is re-initialized at 0 (rewinds to the beginning).

Rewind button resets playback to the beginning of the playback range.

- The *Record* button will create a new MIDI track and will launch a new recording session. When Record is lit, press *Play* button to begin recording a new MIDI performance to a new track. When recording to a new MIDI track, existing MIDI data, instruments, channels and transpositions of the original ENF or imported MIDI file will be maintained.

NOTE: All playback functions are also available in the **Realtime** menu (in MIDI**)** or **Playback** menu (in ENF).

TIP: To select an entire track for cutting and pasting, go to Overview and click (**option + click** for *Mac*) in the track's Name field.

7.4.3 MIDI Devices

To set the MIDI input and output devices,

a. Select **MIDI Devices** from the **Options** menu. The MIDI Devices window will open.

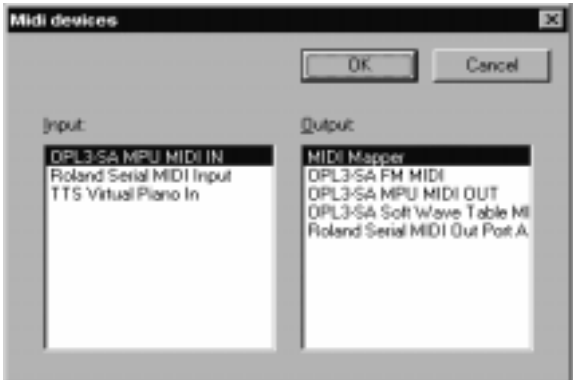


FIGURE 3 - 7: Options > MIDI Devices

b. Click on the **MIDI Input** device / interface you will use for recording new MIDI data.

c. Click on the **MIDI Output** device you wish to use for MIDI playback. The MIDI device window will display all installed MIDI device drivers. MIDI Mapper is the default in Windows and is most commonly used for sound cards although a specific soundcard driver may be selected from the Output list.

d. Press **OK** to set the selected MIDI devices as the current SmartScore MIDI sources. The selected device then moves to the top of the list.

NOTE: If the desired device is not listed in the MIDI Devices window make sure the device driver has been properly installed. Check any software that was installed with your MIDI device and/or download MIDI driver from manufacturer's website.

When installing a new MIDI driver, reboot to initialize the new driver.

Mac Only:

Rerun OMS Setup after installing new MIDI drivers. For more about OMS, turn to “OMS Setup (Mac Classic Only)” on page 35.

7.4.4 Playback Range

To specify part of the score for playback,

a. Select **Set Play Range** from the **Realtime** menu.

FIGURE 3 - 8: Set MIDI Play Range

b. Set the first measure and last measure of the **Play Range.**

c. Mark **Play All** to play the entire score.

d. Check **Loop** to continually repeat the assigned playback range.

7.5 Piano Roll

To select and display a track in Piano Roll view:

a. Select Piano Roll View button from the MIDI Toolbar or push the MIDI button in the Navigator or select Piano Roll from Window menu. In the Overview, double-click or right-click (**option + click** for *Mac*) on the track’s Name.

b. Select the MIDI track you wish to display and press OK.

c. Use the magnifying glass in the Main Toolbar to zoom in or out of the Piano Roll view. Click to zoom in. Right-click (**option + click** for *Mac*) to zoom out.

d. Another zoom method is to drag measure dividers horizontally and piano key dividers vertically. See Figure 6 on page 132 for more details on zooming.

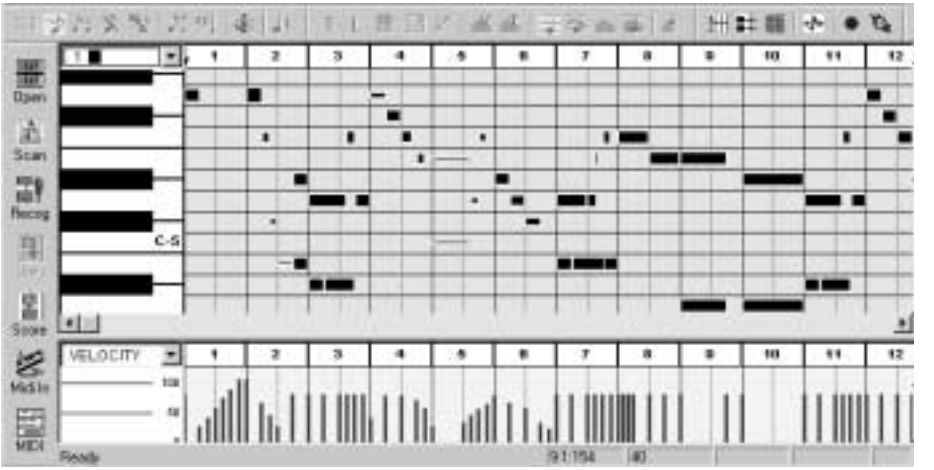


FIGURE 3 - 9: MIDI Piano Roll View

TIP: It is often helpful to have several tracks visible at once. Use the Tile button to neatly display several open Piano Roll views.

7.5.1 Velocity and Tempo Graphical Controllers

In Piano Roll view, the bottom pane of the window displays a graphical, continuous-change MIDI controller. Click into controller Selector pulldown menu to select the MIDI controller you wish to effect a change to.

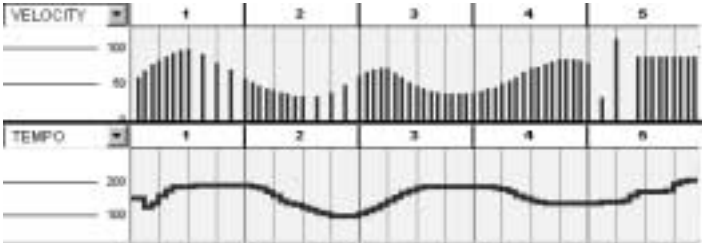


FIGURE 3 - 10: Velocity and Tempo controllers in Piano Roll view

- With the pencil mouse pointer, click and drag a curve over the range you wish to apply the effect.

7.5.2 Switching between tracks

- To move from track to track, click the Track Paging buttons located in the Main Toolbar.

7.5.3 Shuttle Tool

The Shuttle Tool allows you to sound MIDI events forward or backward by dragging the mouse over a range of events.

To operate the Shuttle Tool,

In Piano Roll view, the "**S**" key toggles the Shuttle Tool off and on. To manually select, press the **Toggle Shuttle** button in the MIDI Toolbar or go to the **Options** menu and select **Shuttle On**. Click and hold anywhere in an Overview or Piano Roll and drag the Shuttle Tool to the right to play the MIDI file at your own tempo. Drag the Shuttle Tool to the left to rewind and hear the MIDI file simultaneously.

To insert or change the voice assignment of selected note event(s):

a. Use the Voice Selection pull-down menu located above the piano keyboard to select a voice number.

b. Right-click and drag to create a note event.

7.5.4 Inserting program changes (Assign MIDI instrument)

To insert a Program Change (MIDI patch change) for any given voice:

a. In an active track, position cursor and click wherever you wish to make an instrument change. Select **Edit > Program Change.**

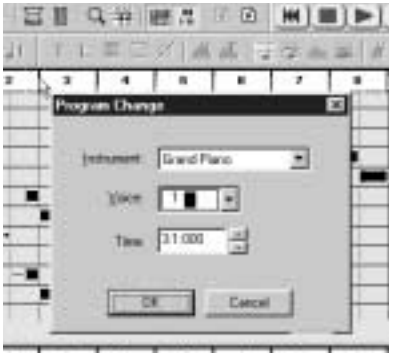


FIGURE 3 - 11: MIDI Program Change (Piano Roll)

b. Select a new **Instrument** from the pull-down menu. In Voice Color mode, select a voice number from the **Voice** pull-down menu. This will apply the new instrument sound to the selected *voice* (voices will automatically be assigned different MIDI channels). For more about Voice Color Mode, turn to “Working with Voices and Colors” on page 103.

c. Press **OK**.

NOTE: List of instruments is determined by the selected **Instrument** set selected in **Options > Instrument Settings**. Instrument set is also able to be selected in the Playback Console (see page 36).

d. An inverted red triangle will indicate the point where the program change was inserted. Clicking on any Program Change triangle will open the **Program Change** window for additional changes.

NOTE: SmartScore supports multiple MIDI channels within each MIDI track. This allows for contrapuntal voices within ENF stafflines to be assigned to different instruments *within each MIDI track*. In other words, multiple voices in ENF are equivalent to multiple channels within a MIDI track. This is a sort of hybrid MIDI type (MIDI Type 1 with a little bit of Type 0).

7.5.5 MIDI Instrument settings

To change MIDI instrument parameters,

a. Select **Instrument Settings** under the **Options** menu. In Playback Console, push the **Set Instrument** button. This will open the Instrument Settings window.

FIGURE 3 - 12: Instrument Settings

b. Select the **MIDI Port** of the MIDI instrument you will be adjusting with the MIDI Port pull-down menu.

c. Choose a specific Instrument Bank or all Banks from the selected MIDI Port if numerical banks are supported by your MIDI device.

d. Select the type of MIDI Instrument (GM, MT32, GS, Yamaha XG, Numeric or Custom) from the **Instrument** pull-down menu.

e. Use the radio buttons to activate or deactivate specific MIDI channels for selected **Instrument** set and **Drum** set. The default MIDI channel for drums is 10.

f. Use the **Drum** pull-down menu to select the type of MIDI Drum set your device supports (GM, No Drums, Roland GS Drums, Yamaha XG Drums, Numeric or Custom).

g. Push **Custom** to create a formatted text document for displaying custom instrument names for your MIDI device. **Edit** to change.

h. **Save** will save **Custom** patch names as a formatted text document (.TXT). Save this file then open it in a word processing application and enter your patch names. Then save as a text document.

i. **Load** will allow you to load the **Custom** text file. Your custom patch names will display throughout SmartScore's MIDI patch selection windows (Instrument Templates and Playback Console).

7.5.6 MIDI event selection

Under the **Edit** menu choosing **Select** opens the Select Window.

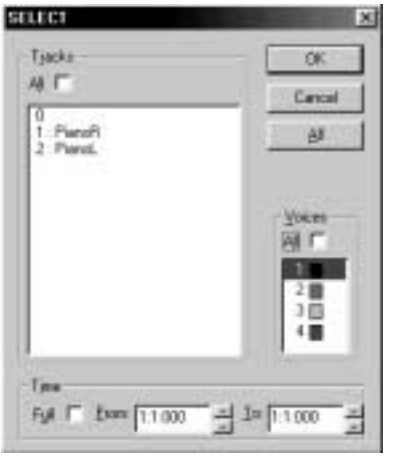


FIGURE 3 - 13: Select Event window

Select **All** tracks or an individual track or voice to highlight for cut, paste, pitch shifting or assigning parameters. Choose **Full** time to display the full length of the MIDI file or designate a portion of the file to display by entering the measure, beat, and tick into the From and To fields.

NOTE: **Edit > Select All** is only available from a Piano Roll or Event List view.

Selecting MIDI events using mouse click-and-drag can be done from any view. Mouse functions work the same in all views.

To select a note or group of notes:

- Click on the individual note or click and drag to Group Select many notes.

To add note(s) to the Group:

- Hold down the Control key and click on the unselected note(s).

To select note events within a given time frame:

Click in Piano Roll to mark the beginning of the time frame.

- Hold down the Shift key and click again to set the end of the timeframe. The selected range will highlight in grey.

7.5.7 Changing MIDI event characteristics

To change the start time of selected note event(s):

- Click and drag the left edge of the note(s) to the position you want.

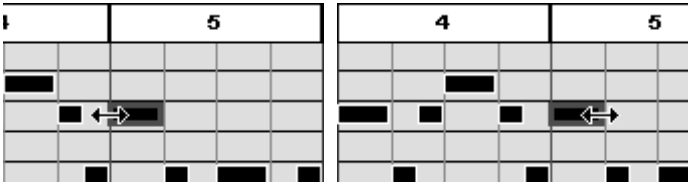


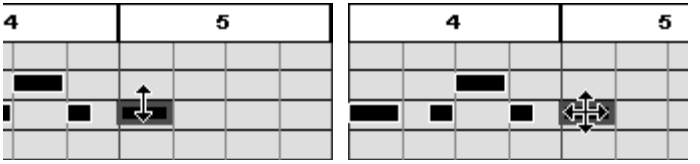
FIGURE 3 - 14: Editing MIDI note on/off events

To change the duration of selected note event(s):

- Click and drag the right edge of a note to change a note's duration.

To change the velocity (loudness/note attack) of selected note event(s):

- Drag the top and bottom edges of a note adjust the note's velocity.



Changing note velocity **Changing note pitch**

FIGURE 3 - 15: Editing MIDI note velocities and pitches

To change the pitch or position of selected note event(s):

- Click and drag the center of the note to change pitch (vertical drag) or note placement (horizontal drag).

NOTE: The arrow keys on your computer keyboard can also be used to adjust the pitch and start time of the selected note.

NOTE: To realign MIDI events to the nearest starting point (quantization), go to **Options > Snap to** and select the base rhythmic value.

To delete selected note event(s):

- Hit the **Delete** key to remove any highlighted notes.

To change the velocity and/or the duration of selected note(s):

a. Select the Velocity/Duration option from the Edit menu. The Velocity and Duration window will open.

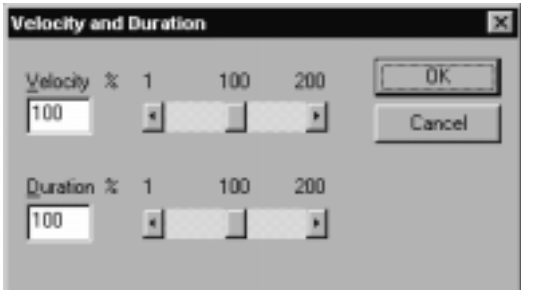


FIGURE 3 - 16: Velocity and Duration window

b. Use the sliders or type in numbers to increase or decrease the velocity or duration of the selected note(s) by a percentage. Example: You wish to double the duration of a group of selected notes. In the Velocity/Duration window move the Duration slider to 200%.

c. Press **OK**.

7.5.8 Note Event window

Double-clicking on any note event will open the Note Event window.

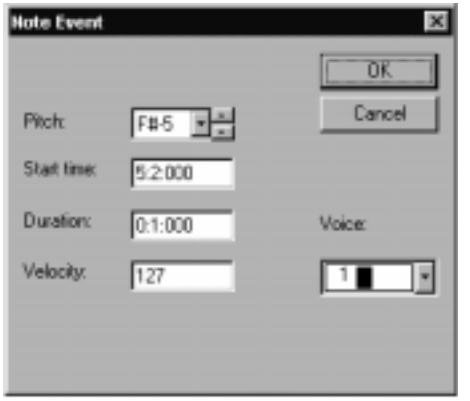


FIGURE 3 - 17: Note Event window

The Note Event window allows access to and adjustment of an individual note's parameters.

- Raise or lower the **Pitch** of the Note Event
- **Start Time** changes when the Note Event begins
- The **Duration** of the Note Event can be shortened or lengthened
- Increase or decrease the **Velocity** of the Note Event
- Select a different **Voice** for the Note Event

7.5.9 Cut/Copy and Paste

Click and drag the mouse or use **Edit > Select** to select a region of note events that you would like to cut, copy or paste.

- **Cut** removes the highlighted notes from the score and places them in the clipboard.
- **Copy** stores the selected notes to the clipboard without removing them from the score.
- **Paste** will insert the contents of the clipboard back into the score without deleting the existing notes. Click where you want to insert the music into the score.
- **Paste Special** will open the Paste Special window.

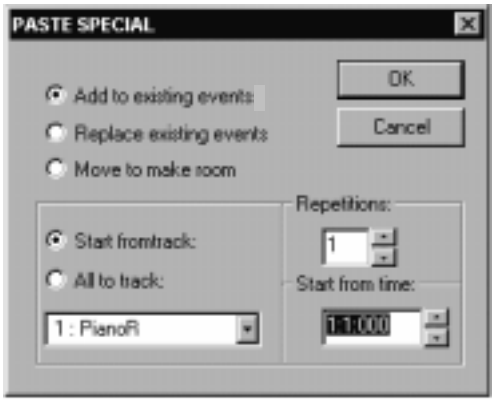


FIGURE 3 - 18: Paste Special

The Paste Special window offers several options for pasting the contents of the clipboard back into the music.

- **Add to existing events** will add the contents of the clipboard to the selected area without erasing the existing notes.

- **Replace existing events** will replace the existing music with the contents of the clipboard.
- **Move to make room** will push the existing music backward and then insert the contents of the clipboard.
- Use **Repetitions** to determine the number of times the contents of the clipboard will be inserted.
- **Start from time** designates where the inserted music will begin by choosing the measure, beat, and tick.
- Select **Start from track** to paste to a selected track number.
- **All to track** will insert the contents of the clipboard, no matter how many tracks were originally selected, into one track.

TIP: Using Tile, you can view ENF and MIDI View windows simultaneously. Changes made in ENF automatically update the MIDI view. This is useful if timing problems are encountered while editing ENF notation.

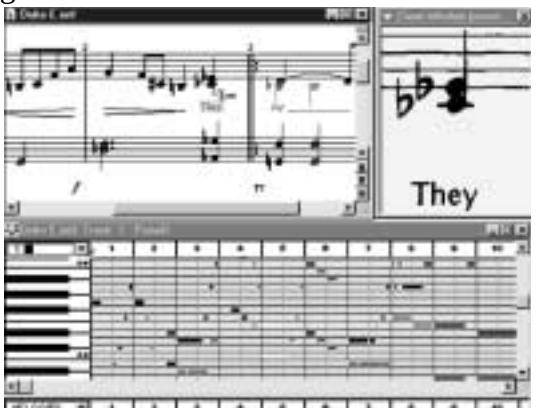


FIGURE 3 - 19: ENF / MIDI Tile View (with floating Zoom window)

7.5.10 Measure Settings

The Measure Settings window allows for inserting changes of tempo, time signature and key signature at the start of any given measure.

To open the Measure Settings window in Overview or Piano Roll view:

- Double-click on the measure number where you wish to insert a change in key, time, or tempo.

FIGURE 3 - 20: Measure Settings

To insert a change of Tempo:

- Adjust tempo with the **Tempo** slider.

To insert a change of Time Signature:

- Use the **Time Sign** pull-down menus to select the number of beats per measure and the base measure unit (2=Half note, 4=Quarter note, 8=Eighth note, etc.)

To insert a change of Key Signature:

- Select the number of accidentals in the new **Key Signature** with the pull-down menu. Mark the key as major or minor with the radio buttons next to the pull-down menu.

Press **OK** to make the changes current through the end of the active MIDI file.

7.5.11 Setting Repeats and Multiple Endings

While you are more likely to insert repeats and multiple endings in ENF view, they can also be edited in the **Measure Settings** window in Overview or Piano Roll view. Double click any measure number to open the **Measure Settings** window of that measure.

- **Simple Repeats**

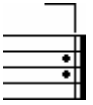
Check the **1st Measure of Repeat** box to select a measure as the beginning of the repeated section.

Use the **# of Passes** scroller to determine the total number of times this section will be played. For example: If you want the section to play through and repeat one time, set the **# of Passes** to 2 (the default).

Check the **Last Measure of Repeat** box to set a measure as the final measure of the repeated section. During playback, once the preset number of passes has been met, playback of the remainder of the score will continue after this measure has finished.

The **1st Measure of Ending** box designates a measure as the beginning of an ending.

The **Number of Passes** scroller is used to number this ending, i.e, 1 = 1st Ending, 2 = 2nd Ending. Hold down the Ctrl key to select a number to designate the number multiple passes this ending should have.



Use the **Last Measure of Ending** check box to define the total length of the ending. After this measure is played, MIDI playback will jump to the 1st Measure of Repeat and continue on with the next pass.

NOTE: This measure is also the Last Measure of Repeat. Check the Last Measure of Repeat box to continue playback with the 1st Measure of Repeat.

7.5.12 Segnos

A Segno is a musical notation symbol used to denote the beginning or the end of a repeated section.

- **Starting from a Segno**

Checking the **Segno** box will place a Segno in a measure.

Activate the **Jump** check box and select **d.s.** or Dal Segno (from Segno). After this measure is played, MIDI playback will jump to the Segno measure and continue playback.

- **Ending at a Segno**

Check the **Jump** box and select **d.c**. or Da Capo (from the beginning) and **al segno** (to the Segno).

Checking the **Segno** box will place a Segno in a measure. Playback will stop with this measure.

- **Fine**

Fine means final or end. It denotes the last measure of a score when repeats are used.

- **d.c. al fine**

Check the **Jump to** box and select **d.c.** or Da Capo (from the beginning) and **al fine** (to the end). After this measure is played, MIDI playback will jump to the beginning of the score and continue playback to the end.

Use the **Fine** check box to insert a fine into a measure. MIDI playback will stop at the end of this measure.

- **d.s. al fine**

A Fine can be inserted after a Segno when the Segno is used to mark the beginning of the repeated section.

Checking the **Segno** box will place a Segno in a measure.

Activate the **Jump** check box and select **d.s**. or Dal Segno (from Segno) and **al fine** (to the end). After this measure is played, MIDI playback will jump to the Segno measure.

Check the **Fine** box to insert a fine in a measure. MIDI playback will play through the score, return to the Segno measure, and stop after the Fine measure is played.

- **Jump**

Jump can be used to “send” MIDI playback to a certain measure.

Select **to Measure** in order to jump to a chosen measure during playback.

On Pass will send MIDI playback to the selected measure on the designated pass only.

NOTE: Check **On Pass** if the **d.s., d.c,** or the **Jump** measure falls within a repeated section and define on which pass playback will jump.

7.6 Event List

To view and edit detailed MIDI events, meta events, note events, controllers, program changes, key and time signatures, etc. in a selected track,

a. Press the **MIDI** button of the Navigator or in the menu, select **View > New MIDI View** or **Window > Event List**.

b. Choose Event List from the Type pull-down menu

c. Select a track to view and press **OK**.

The Event List displays every MIDI event of the selected track:

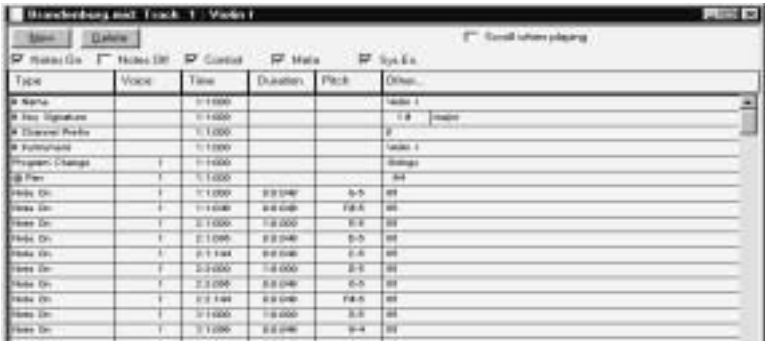


FIGURE 3 - 21: Event List

- Select what event types are displayed in the Event List by checking or un-checking the Event Type boxes along the top of the Event List.
- To scroll the Event List display during playback, check the "*Scroll when playing*" box in the Event List window.

- To page from track to track, click on Track Paging buttons in the Main Toolbar.

7.6.1 Changing parameters of selected notes

To change parameters of a group of selected notes:

- Click in any of the columns to change the parameters of an existing MIDI event or double click in the Type column of a Note Event to open the Note On window.

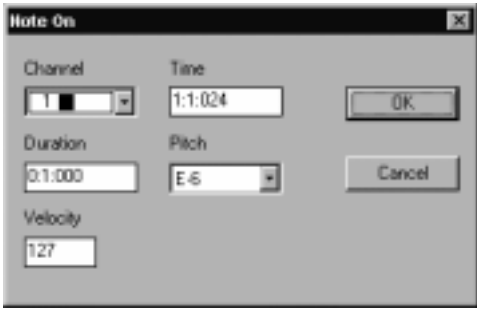


FIGURE 3 - 22: Note On window

The Note On window, like the Note Event window, allows for adjustment of an individual note's parameters: Channel, Time, Duration, Pitch, and Velocity.

7.6.2 Inserting note events

To insert new events in the Event List view,

a. Click the Event you want the Note to follow. Select **New** from the upper left-hand corner of the Event List. The **Create New Event** window will open.

b. Scroll to **Note On** in the Event Type menu.

c. Press **OK.**

d. A Note On event will be inserted into the Event List.

e. Enter the Voice, Time, Duration, and Pitch of the new event by clicking in the corresponding columns or double-click in the **Type** column to open the Note On window.

7.6.3 Editing Key, Time and Tempo

Click in any column to make changes to any existing MIDI events. To insert a new tempo, key, or time signature click the event you want the new event to follow. Press the New button. The Create New Event window will open.

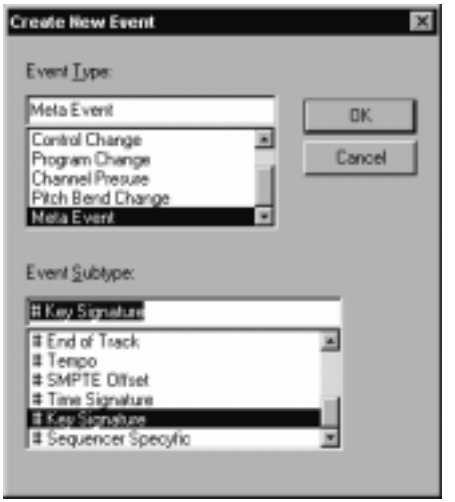


FIGURE 3 - 23: Create New Event window

Use the scroll bar to select Meta Event. A Meta Event is a MIDI file instruction. Scroll through the Event Subtype window to choose Tempo, Time Signature, or Key Signature. Press **OK**. Use the Other column to select the new tempo, time signature, or key signature OR double-click in the Type column to open an event-specific window. You may type in a new value.

7.6.4 Inserting Non-Note Events

Any MIDI event that is not a *note-on* or *note-off* event is a *non-note* event. This includes MIDI Control Changes, Program Changes, Channel Pressure, Pitch Bend information, and Meta Events.

To insert a non-note event in the Event List view:

a. Select the event you want the *non-note* event to follow.

b. Press the **New** button.

The **New Event** window will open.

c. Use the Event Type menu to select the event to be added.

NOTE: Some events, such as Control Change and Meta Event, have Subtype event listings. Choose one if applicable.

d. Press **OK.**

- **Program Changes**

Program Change inserts a MIDI event that changes the instrument playback for a given channel / voice.

To insert a Program Change of the voice/channel in Create New Event:

a. Program Change is the default New Event, so simply press **OK**.

The selected Program Change will be inserted into the Event List.

b. Use the **Voice** pull-down menu to designate the voice to which the Program Change applies.

c. Use the **Other** pull-down menu to select a new instrument.

- **Control Changes**

Control Changes send adjustable parameters to your selected MIDI device i.e., vibrato, hold, volume, pan, effects, etc. You can add specific changes to these controls from within SmartScore's Event List. To find out more about what each control change will do, refer to the user's manual of your MIDI device.

- **Meta Events**

Meta Events are MIDI file instructions written to the MIDI file. They provide information such as file and track headers, SMPTE code, tempo, key and time signatures, etc. and can be added to any MIDI file using SmartScore's Event List

7.7 Playback Console

The Playback Console is available in Overview and Piano Roll views and allows for detailed viewing and control of playback and provides real-time editing of the active MIDI file. Push MIDI in the Navigator

and select Piano Roll or Overview. Push the ***Playback Console*** button in the SmartScore Toolbar or choose **Real-time > Playback Console** (**Ctrl +9** Win **/ Cmnd+9** *Mac*) to open the Playback Console.

NOTE: The console can act as a “window shade”. To shrink vertically, drag the bottom edge of the console up or down.

7.7.1 Adjusting Playback Console Settings

General;

- Adjust global playback volume using the **General Volume** slider.
- Adjust channel volumes using individual **Volume** sliders.
- Use **Pan** to adjust stereo balance for each channel.
- **Default** resets all MIDI tracks to their original settings.
- The **Close** button will close the Playback Console.
- **Mute** any voice while all others continue to play or **Solo** a single voice for playback.
- Change the MIDI **Instrument** or **Channel** of any voice.

To play back at a given point in the file;

- Use the **Measure / Beat** slider and scroll to the desired measure and beat in the score.

To select the MIDI output device;

- Use the **Port** pull-down selector.

To transpose playback globally;

- Use the **General Transposition** pull-down selector.

To transpose an individual track / voice;

- Use the **Transposition** pull-down selector in any track / voice.

7.8 Display Controls

7.8.1 Time

To choose whether the timing of MIDI note events is displayed by Measure: Beat: Tick or by Tick Number;

- Go to the **Options** menu and select **Time Format**.

- Choose by *Measure: Beat: Tick* or by Tick Number.

7.8.2 Velocity

To choose whether the velocity of MIDI note events is displayed with absolute numbers (0-127) or as percentages;

- Go to **Velocity Format** under the **Options** menu.
- Choose by Value (0-127) or Percent.

7.9 MIDI Recording

No MIDI Recording

7.9.1 Recording Options

To activate the Record mode and adjust the recording options choose Record from the Realtime menu.

- **Synchro Start**

Recording is synchronized to start with the first MIDI note played. To "unsynchronize" the start of recording with the first played MIDI event uncheck **Synchro Start** from the **Realtime** menu OR choose the **Metronome Settings** listed under the **Options** menu and uncheck **Synchro On**.

- **Thru**

Sends new MIDI events to the selected MIDI output device. The active Piano Roll determines the parameters of the MIDI Thru sound. If no Piano Roll is open, MIDI Channel 1 is used.

7.9.2 Metronome

The Metronome is on by default. The metronome is useful in keeping time while recording and as a "count-in" tool to mark the beginning of the recording session.

Sometimes, you may want to record "freely"... that is, you simply want to capture a performance in MIDI without worrying about timing or about trying to convert the performance into notation. For this purpose, you will want to turn the metronome off. To make the metronome inac-

tive during recording, uncheck **Metronome** from the **Realtime** menu OR choose the **Metronome Settings** listed under the **Options** menu and uncheck **Metronome On**.

To make changes to SmartScore's metronome;

- Choose **Metronome Settings** from the **Options** menu. The Metronome Settings window will open.

FIGURE 3 - 24: Metronome Settings

NOTE: The **Metronome On** check box must be selected for the metronome to sound during recording. To record without a metronome uncheck the Metronome On box.

With **Synchro On**, SmartScore will synchronize the start of recording with the first played MIDI event.

Select which **MIDI Port** the metronome will play through.

Choose the metronome's **MIDI Channel**.

NOTE: The de facto drum channel, MIDI Channel 10, is the default channel. But you can change it if you wish.

Determine the number of **Lead-in Measures** that will play prior to the start of recording. The metronome will click at each baseline beat (derived from the time signature) for as many measures as you choose.

The **Primary Beat** (down beat) will sound when its **On** check box is selected. The **Pitch** pull-down menu displays all General MIDI drum sounds. Use the **Volume** scroll box to increase or decrease the volume of the Primary Beat. The default accents the Primary Beat.

The **Secondary Beat** will sound when it **On** check box is selected. The **Pitch** pull-down menu displays all General MIDI drum sounds. Use the **Volume** scroll box to increase or decrease the volume of the Secondary Beat.

7.9.3 Snap to

MIDI recording is very strict. Any fluctuation in timing or speed may result in strange or even useless notation. To prevent this, you can apply quantization to your performance. Select **Snap to** from the **Options** menu prior to recording. Choose the smallest rhythmic value that you think you can accurately play while recording. The resulting MIDI events will be justified, each event beginning at the nearest selected rhythmic timing mark.

You can reset start times of selected events to the nearest value set in **Options -> Snap to** will also reset start times of all selected MIDI events and will fix the increment at which selected MIDI events can be moved, when using the mouse or arrow keys to move events horizontally.

7.9.4 Recording New Tracks / Voices

To Record a new track to a MIDI file,

a. Select **Record** from the **Realtime** menu OR press the Record button in the Playback Console. The New View window will open if any MIDI data already exists in an active file.

FIGURE 3 - 25: Selecting Track to Record

b. Select an existing track to record a new voice within the same track.

NOTE: The new MIDI data will be added to the existing track without overwriting any material.

c. Select **New Track** to record a brand new MIDI track.

NOTE: A Piano Roll will open for the selected track. A Piano Roll must be open to record in SmartScore. A new voice and MIDI channel will automatically be created when recording into any track.

d. Use the Playback Console to assign the MIDI parameters for the new track / voice.

e. Press the spacebar or select **Play** from the **Realtime** menu, or press the Play button in the Playback Console to start recording at measure 1, unless a Punch In point has been set (see below).

While recording:

- **Pause** (spacebar) will temporarily halt recording.
- **Play** button (spacebar) will resume recording the same track / voice
- **Stop** will end the current recording session. SmartScore will return to the standard MIDI editing environment.

7.9.5 External Timer

- To run SmartScore's MIDI recording from an external timer, select **External Timer** from the **Realtime** menu.

7.9.6 Setting Punch In and Punch Out points

To set Punch In and Punch Out points for recording, double click any measure number in an Overview or Piano Roll. The Measure Settings window will open.

- Check **Punch In** to start recording at the beginning of this measure.
- Check **Punch Out** to set this measure as the last measure for recording.

The Punch In and Out points are marked with red triangles in the Overview and Piano Roll displays.

7.10 Step Time Recording

Recording a "live" MIDI performance to a metronome may be very useful to an accomplished keyboardist, but many of us do not have the timing skills required to record a performance meaningful enough for conversion to notation. Even if using "Snap to" quantization will result in note positions that are offset with a mix of strange note values and, usually, many rests. A logical alternative to live recording is ***Step Time Recording***. Using this method, you will be able to quickly select exact note durations as well as "skips" (rests) from the number pad of your computer keyboard. With your other hand, enter notes and chords from your MIDI keyboard or MIDI instrument.

To activate Step Time Recording,

a. Make sure your MIDI keyboard or MIDI instrument is properly connected to your computer and that it or its interface is selected under **Input** in the **MIDI Devices** window (See "MIDI Devices" on page 134 for more.)

b. From the **Realtime** menu, select **Step Time Record**.

c. Select a track. The default is set to "**New Track**". If you wish to record onto an existing MIDI track, select that track in the **New View** window.

d. Press **OK**.

e. A floating window representing the computer keyboard number pad and associated note durations appears. **Record** is now staged.

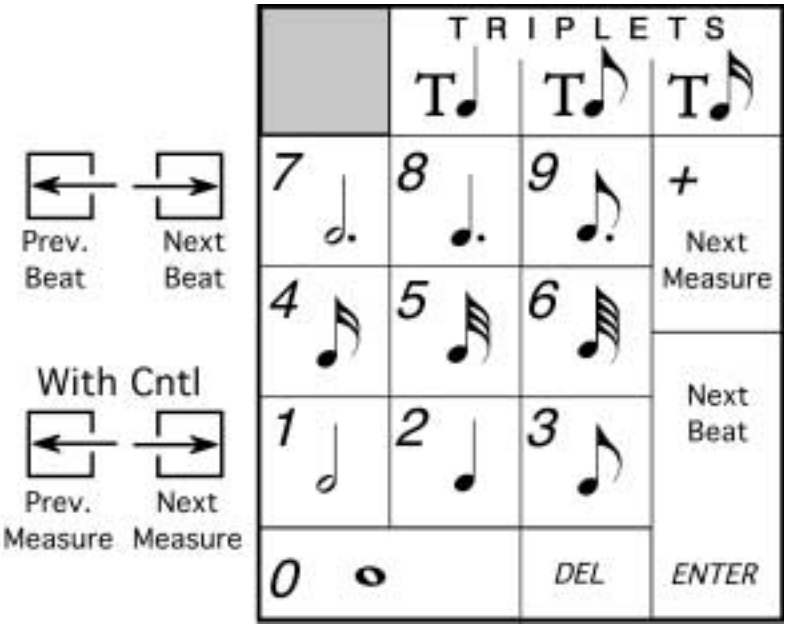


FIGURE 3 - 26: Step Time recording (Number Keypad)

f. Click on a note value or control button in the floating key pad window. Or, you may select the corresponding value / control function using the numerical keypad on your computer keyboard.

g. Press the **Play** button of the Mini Console. Recording will begin at Measure 1.

h. Press a note or chord on your MIDI instrument. Notes of the selected value will insert. The next note you enter will begin at the same point the last note ended. e.g. In 4/4 time with quarter note selected, hitting a note four times will fill up one measure.

i. To insert a rest, choose a note value and hit Enter or right arrow.

7.11 Virtual Drum Kit

In any MIDI view, you can record your own drum tracks onto existing tracks using nothing more than your computer keyboard. To activate Virtual Drums, go to the **Realtime** menu and select **Virtual Drum Kit**. See for more information.

7.12 Playback Considerations after MIDI Editing

If you return to the ENF view after editing in the MIDI environment, playback will retain changes made in MIDI views until the ENF display is updated with “MIDI Refresh”. If notation is subsequently edited in ENF or if MIDI Refresh is selected, you will be given a choice of A) Keeping current MIDI playback B) Refreshing ENF and clearing previous changes made in MIDI or C) Saving the current playback as a MIDI file.

Refer to “Updating and refreshing playback and display” on page 128 for more information on how ENF and MIDI views are inter-related.

7.13 MIDI to ENF

SmartScore accepts any Standard MIDI file and converts it to an ENF file.Turn to “MIDI to ENF” on page 123 for details.

7.14 Saving MIDI Files

When saving a MIDI file, remember that you are not saving a music notation file. The more “humanized” the MIDI file sounds, the less likely it will appear correctly when imported into a music notation application, such as SmartScore. Saving SmartScore files derived from scanning will normally give reasonably good results because the music is already “quantized” into discreet start and stop times.

To save a SmartScore MIDI file,

a. Select **FILE > Save As**, click the “**Save as Type**” pull down menu and select either ***MIDI Type 0*** (Single Track/Multiple Channels) or ***MIDI Type 1*** (Multiple Tracks / Multiple Channels).

b. Push the Save button. A window appears saying the following:

Articulations such as slurs, staccatos and legatos will result in a MIDI file that will not import properly into a notation program. Choose whether you want your MIDI file for importing into a notation program or for playback only.

c. Choose **Remove** or **Keep Articulations** according to your need.

Chapter 8 Reference

8.1 Properties Tool

Playback properties of many markings, including dynamics and articulations, may be adjusted singly or globally with the use of the Properties Tool located in the SmartScore toolbar. See Section 6.11, "Properties Tool" on page 115 for more details.

9.1 Tool Palettes

9.1.1 Notes and rests

See “General Note Editing” on page 53.

9.1.2 Articulations

Turn to “Articulations and Trills” on page 112 for editing details.

- **Slur (Legato)**

Note durations associated with slurs are increased about 10% giving an overlapping or “connected” effect when played back.

- **Turn**

Click on note head or note stem apply a turn. Turns play back as follows:

FIGURE 8 - 1: Turn

- **Fermata (bird’s eye)**

Click on note head or note stem to apply a fermata. Tempo is slowed by 50% for the duration of the note to which the fermata is attached.

- **Staccato**

Click on note head to apply a staccato. Duration of the associated note is shortened by 25%.

- **Tenuto**

Click on note head to apply a tenuto. Duration of the associated note is extended by 125%.

- **Accent**

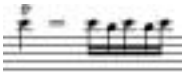
Click on note head to apply an accent. Accent increases the velocity of its associated note by 150%.

- **Soft Accent**

Click on note head to apply a soft accent. Soft accent increases the velocity of its associated note by 125%.

- **Trill**

With ***tr*** **(**trill) selected, click on a notehead to insert a single trill marking. To create an "extended" trill, toggle the "C" key to enter Change mode. Click and drag horizontally to select a region. The length of the extension is determined by how far you drag the mouse.



Trill (**Insert** mode)

Extended Trill (**Change** mode)

FIGURE 8 - 2: Trill and Extended Trill

- **Sharp, Flat and Natural**

With one of these modifiers selected, clicking on a trill marking will cause playback of the trill to "flatten", "sharpen" or "neutralize" certain pitches within the context of the active key signature. The modifier also appears above the trill marking when inserted.

- **Mordent**

Click on notehead to apply a mordent. Mordents play back as follows:

FIGURE 8 - 3: Mordent

- **Inverted Mordent**

Inverted mordent play back as follows:

FIGURE 8 - 4: Inverted Mordent

- **Tremolo (single, double, triple, quadruple)**

Tremolos repeat the note affected by dividing the associated note by four times the selected tremolo value.

FIGURE 8 - 5: Tremolo (Double)

- **Arpeggio**

Arpeggiated chords will offset the start time of all members of a cluster and will keep them sustained throughout the duration of the chord.

Written Played

FIGURE 8 - 6: Arpeggio

- **Glissando**

Glissandos divide connecting notes into equal notes of 1/4 base value.

Written Played

FIGURE 8 - 7: Glissando)

9.1.3 Clefs

In **Insert** mode, select amy clef from the “Clefs” palette. Click anywhere in the active staff to insert the selected clef.

In **Change** mode, clicking on an existing clef to change to selected clef. Note that playback becomes updated. Notes do not reposition themselves when a clef is changed either by a change-of-clef sign or by Unifying Clefs.

To **Delete** a clef, press the "**X**" key and click on the clef.

NOTE: See "Unify Signatures/Clefs (U)" on page 91 for more details on how to update clefs throughout all remaining systems.

- **Alto / Tenor / Mezzo-soprano ("C") clefs**

The midpoint of the "C" clef indicates where C *below middle C* (MIDI *C3*) is to be located.

- **Treble Octava / Bass Octava clefs**

Playback in these clefs will be an octave higher than with a standard clef.

- **Treble Octavo / Bass Octavo clefs**

Playback in these clefs will be an octave lower than with a standard clef.

- **Octava / Octavo tools**

These are not clefs *per se*. Rather than insert with a mouse click, they are applied to selected notes by dragging to select the notes to be modified. Playback of selected notes will be an octave higher when selecting with ***Octava*** tool and an octave lower when selecting with an ***Octavo*** tool.

To assign Octava or Octavo to a range of selected notes

a. Select either ***Octava*** or ***Octavo*** tool.

b. With the mouse pointer, drag to select notes in the active staff.

FIGURE 8 - 8: Octava

Notice that the *Octava or Octavo* mark will appear at the beginning of the range of selected notes an the applied range will be indicated by a dashed line above the selected notes.

- **Percussion clef**

When the Percussion clef is entered on a staffline, MIDI channel assignment of the staff switches to 10; the default drum channel. Notes can be entered normally, but will playback only as MIDI drums. Note pitch-to-MIDI drum assignments are mapped in **Drumset** option under the **Playback** menu. Refer to “Playback > Drumset” on page 77 to assign drums.

9.1.4 Barlines and Repeats

See “Repeats and Multiple Endings” on page 118.

9.1.5 Signatures (Key and Time)

To change an existing key or time signature to another signature,

NOTE: It is possible to change one or all key signatures in a system. In **Insert** mode, all staves of the system are updated to the inserted key signature. In **Change** mode, only the staff line where the change is made will be affected. This is particularly useful for transposed instruments.

a. Select a new signature from the tool palette.

b. Hit the “**C**” key to toggle to the **Change** mode.

c. Click on the signature to be change.

NOTE: The key of C major (A minor) does not have a visible sign to indicate its presence. If no key signature is visible in the first measure of the ENF display, the key signature will be C major (A minor) by default.
To to change C major to a new key signature selected from the palette, you must still toggle to **Change** mode and click on or to the right of the clef sign. Simply inserting a new key will not work.

*To create a custom time signature to **Insert** or **Change**,*

a. Select the **Custom Time** button from the **Signatures** palette

b. Using numeric scrollers, select a new ***numerator*** (beats per measure) and a new ***denominator*** (note value receiving the beat).

c. Click to insert signature immediately following any barline.

To insert a new key or time signature in the body of a score,

- With a time or key signature selected from the **Signatures** palette, **Insert** mode, click to the right of any barline.

To insert a new key or time signature at the end of a system:

According to the conventions of music notation, a change-of- key or a change-of-time signature that begins on a new line should be indicated at the end of the previous line.

FIGURE 8 - 9: Time Signature at the end of a system

- Insert a barline about 1/2” to the left of the end of a system. Insert the new time signature anywhere to the right of a barline.
- If a barline “closes” the system, you may click to the right of the last barline to insert a signature. It will appear outside and to the right of the system.
- A final option is to simply insert the change-of-signature at the beginning of a new line.

To delete a signature

- With the mouse pointer displaying a key or time signature, hit the “**X**” key to enter **Delete** mode and click on the signature.

9.1.6 Rhythmic Groups

See “Tuplets and Slurs (Legatos)” on page 58.

9.1.7 Dynamics

See “To insert a crescendo or decrescendo,” on page 111

9.1.8 Tempo

See “Tempo Markings” on page 110

9.1.9 Tools

- **Text**

Selecting the Text button sets the mouse pointer to the Text Edit mode. See "Text", Section 4.1, on page 65.

- **Lyrics**

Selecting the Lyric button sets the mouse pointer to the Lyric Edit mode. See "Lyrics", Section 4.2, on page 66.

- **Guitar Fretboard**

Selecting the Guitar chord fretboard button set the mouse pointer to “Insert Guitar Chord” mode. See "Guitar Frets and Chord Symbols", Section 4.5, on page 71.

- **Edit Shapes**

Selecting the Edit Shapes button activates Edit Shapes mode. See "Edit Shapes", Section 4.4, on page 69.

- **Rehearsal**

Ten Rehearsal Markings can be placed anywhere in the ENF view.

- **Pedals**

Four Pedal Markings can be placed anywhere in the ENF view.

- **Bowings**

Two Bowing Markings can be placed anywhere in the ENF view.

- **Breaths**

A Breath Marking can be placed anywhere in the ENF view.

9.2 ENF Menu Items

ENF FILE Menu

9.2.1 File -> New ENF (Ctrl +N Win / Cmnd+N)

Select between a new ENF or a new MIDI. Choosing New ENF will open the New SmartScore Document window. Select a Template or use Custom to create a unique score. Choosing New MIDI will open a blank MIDI Overview and Piano Roll for MIDI input.

9.2.2 File -> Open (Ctrl +O Win / Cmnd+O)

Opens File Selection dialog box and lists saved files. A selected file will be loaded into memory and will display on the screen.

9.2.3 File -> Close (Cmnd+W)

Closes active ENF document. If changes have been made, a Save As dialog box will open.

9.2.4 File -> Save (Ctrl +S / Cmnd+S for *Mac*)

This will save an open SmartScore document to the same drive the file was opened from. The original name remains unchanged. If ENF and Image are displayed, only the ENF file is saved.

9.2.5 File -> Save As

You can save files in several file formats other than SmartScore's native ENF format. These include MIDI (**.MID**), NIFF (**.NIF for Lime** and **.NIF for Sibelius**) and (**.FIN**) file. Saving in the .FIN format will create a file that can be opened in Finale 2000c or greater with page layout and formatting intact. To save open ENF document into one of these formats or to save open file with a new name,

a. Go to **File -> Save As.**
b. In the Filetype/Format window, choose a format to save the file.
c. Browse to another directory and change the name if necessary.
d. Press **OK**. The file will be saved in the last directory used to "save".

NOTE: Use **File > Save** (**Ctrl +S** /**Cmnd+S**) to update the current ENF file.

9.2.6 File -> Scan Music

- **Acquire:** Initiates scanning. Same as Scan in Navigator.
- **Select Scanner:** Opens list of available TWAIN drivers to select.
- **Choose Interface (Windows only):**
  -> SmartScore's = selects the SmartScore scanning interface. Refer to "Scanning in Windows: Using the SmartScore Scanning Interface" on page 2 for details.
  -> Your Scanner's = selects the image scanning software included with your scanner.

9.2.7 File -> Import

SmartScore imports standard NIFF files (Notation Interchange File Format) which conform to the ***NIFF 6b Specification***. NIFF is an open standard for the exchange of music notation files between music notation programs. The NIFF standard supports both graphical and time-based data. Unlike MIDI files, which are only time based, NIFF attempts to logically integrate both page layout and playback information.

9.2.8 File -> Page Setup

Page Setup allows for several adjustments of how your music will appear on-screen and on the printed page. Since SmartScore is WYSIWYG (What you see is what you get), your pages will print just as they appear on-screen, albeit sharper provided you have a high-resolution printer.

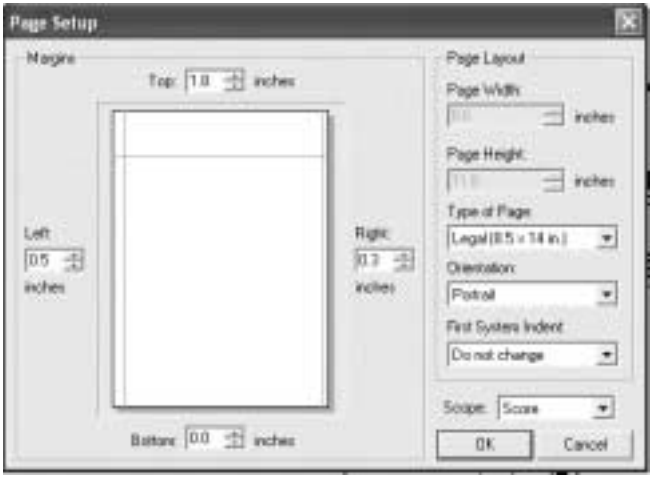


FIGURE 8 - 10: Page Setup

*To open Page Setup, go to **File > Page Setup***

a. Adjust margins, if necessary, by either dragging margin line in page preview window or by setting amount in top, bottom or side fields.

b. Apply changes using the **Scope** pull-down menu. Select **Score** to apply changes to the entire ENF file. Choose **Part** to apply changes only to current score-part. Choose **Page** to apply to current page.

9.2.9 File > Print Preview

Selecting this option gives you a page views in a horizontal format. See page 178, "View -> True Scrolling" for more information about previewing pages in horizontal or vertical format.

9.2.10 File > Print (Ctrl+P / Cmnd+P)

To Print the active ENF document,

- The active (topmost) ENF file will print only. To print other open ENF files, close the topmost active ENF file first.

Windows Only:

SmartScore includes a print driver which may provide better print results when used with certain printers than does the Windows print driver. When printing for the first time, select the driver that gives you the best printing results: either the SmartScore or Windows print driver. You may choose to permanently disable to selection window at any time.

Windows Only:

9.2.11 File >Save As PDF

SmartScore includes a utility that allows you to save ENF files as Adobe® Acrobat® PDF files. PDF995.exe® resides in the SmartScore folder and is installed during normal installation. PDF995 lauches automatically when invoked in ENF. The utility appears in your list of printers whenever you invoke **Print** in an other applications.

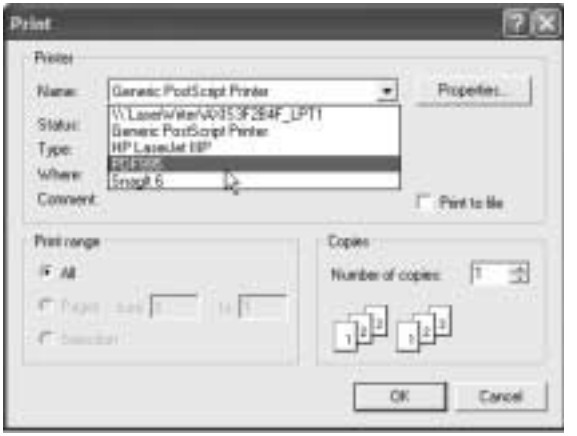


FIGURE 8 - 11: Selecting PDF995 to create a PDF file.

Select **File > Save As PDF**, to generate a PDF file out of your ENF file. Browse to any directory to save the PDF file on your computer.

Windows Only:

9.2.12 File > CD Writer

NOT DOCUMENTED FOR PUBLIC BETA VERSION.

ENF EDIT Menu

9.2.13 Undo (Ctrl +Z / Cmnd+Z)

Reverses the last action you performed. SmartScore has ninety-nine layers of Undo.

9.2.14 Redo (Ctrl +Y / Cmnd+Y)

Reapplies the last action that has most recently been Undone.

9.2.15 Edit -> Cut (Ctrl+X / Cmnd+X)

To Cut selected objects from the score and place them on the clipboard,

a. Hit "**O"** key or choose the Select tool from the Toolbar.
b. Click and drag a box with the cursor.
c. Press **Ctrl + X / Cmnd + X** or select **Edit** > **Cut** from the menu.

9.2.16 Edit -> Copy

To Copy selected objects to the clipboard without removing them from the score,

- Click and drag a box with the Select tool. Press **Ctrl +C** / **Cmnd+C** or go to **Edit > Copy**.

To Copy selected objects to the clipboard without removing them from the score,

- Click and drag a box with the Select tool. Press **Ctrl +C** / **Cmnd+C** or go to **Edit > Copy**.

9.2.17 Edit -> Paste (Ctrl +V / Cmnd+V)

To Paste the contents of the clipboard into an ENF file,

- Select Paste (**Ctrl +V / Cmnd+V**) from the Edit menu and click anywhere in the score. The contents of the clipboard will be added to the score without replacing the existing notes.

9.2.18 Edit -> Paste Replace (Ctrl+R or Cmnd+R)

To Paste the copied material into an ENF file and replace existing notation,

- Select **Paste Replace** from the **Edit** menu (**Ctrl+R** or **Cmnd+R**) and click anywhere in the score.

TIP: Use **Paste Replace** to quickly replace a complex passage that was poorly recognized with an identical passage that is correct.

9.2.19 Edit -> Select All (Ctrl+A or Cmnd+A)

To select all objects on the page for cut, copy or paste / replace action,

Choose **Select All** from the **Edit** menu (**Ctrl+A** or **Cmnd+A**).

9.2.20 Edit -> Bracketing (Ctrl+B or Cmnd+B)

Refer to “Bracketing” on page 75.

9.2.21 Edit -> System Manager (Ctrl+M or Cmnd+M)

Refer to “System Manager” on page 97.

9.2.22 Edit -> Part Linking (Ctrl+L or Cmnd+L) (Collapsing and expanding systems)

A lot of music contains parts that do not play for long periods of time. Many printed scores “collapse” or “optimize” systems to show only actively playing parts. Similarly, instruments that appear in one part may split into two or more parts anywhere in the score causing systems to “expand” in size. SmartScore automatically senses expanding systems when, for example, a piano solo introduction precedes a vocal/piano arrangement. Expanding and collapsing parts are easily linked or re-linked in a simple-to-use environment called Part Linking. Turn to “Re-link Parts” on page 94 for details on this feature.

9.2.23 Edit -> Score Structure

This special environment is used to perform useful functions such as creating a conductor’s score from different parts and for isolating or joining parts and voices. For detailed discussion on using this powerful feature, turn to “Score Structure” on page 97.

9.2.24 Edit -> System -> Insert Above/Insert Below/Remove

NOTE: When an ENF score structure is changed by adding or deleting staves and/or systems from the **Edit** menu, synchronization with the scanned images will be lost. We recommend that you complete all needed edits/corrections or save a copy of the ENF file before using the **Edit** menu to change structure of your scanned music. See "View ->Associate Image Files" on page 179 for information on keeping synchronization.

Use this feature to insert an entire empty system above or below the currently active system. Use to delete a system, if you need to.

a. Position the mouse pointer over the current system to make it *active*.

b. Hold down the "**Ctrl"** button and select the function you want from the **Edit** menu.

TIP: Keep the **Control** (**Ctrl**) key depressed for as long as required to maintain focus on the system or staff you are altering. Whenever you move the mouse pointer out of an active staff or system, another staff or system becomes active.

c. To remove a system from a score, position the cursor over the system you wish to delete and select **Edit -> System -> Remove.**

9.2.25 Edit -> Staff -> Insert Above/Insert Below/Remove

Use this feature to expand or collapse a system. This will add a new part to the system and also add a new part to the Super System. Make sure you hold down the **Ctrl** button before moving the cursor to the **Edit** menu.

NOTE: Only the *active* system is affected when inserting or removing a staff. Remaining systems do not change. Change *visibility* in the **System Manager** and apply to *Score/Part* for all systems to become updated.

TIP: Keep in mind that when you add a part to a system, you are also adding a new part to the score. When adding a part to a system, the new part will not be visible in any system except the active system. See "Adding parts (Super System)" on page 91.

9.2.26 Edit -> Score-Part

Use this feature to append a new Score-Part to the ENF document. When a new Score-Part is added, it will begin playback at measure #1 along with all other Score-Parts that have been created.

9.2.27 Edit -> Unify Signatures (U)

Refer to “Unify Key, Time and Clefs (U)” on page 121.

9.2.28 Edit -> Format Score

This is a kind of “cleanup” tool that attempts to horizontally reposition notes and rests. Does not “rolling” objects from one system to another.

9.2.29 Edit -> Instrument Templates (**Ctrl+S** or **Cmnd+S**)

Refer to “Instrument Templates” on page 101.

9.2.30 Edit -> Score Header

To enter a Score Header at the top of the first page of the ENF file,

FIGURE 8 - 12: Score Header

a. Select **Title** and type in the name of the score.
b. Select **Composer** and type in the name of the composer.
c. Type a part name if it is a Score-Part.

9.2.31 Edit ->Tempo

To set the default tempo,

a. Select desired *Beats per Minute* from the horizontal slider.
b. Choose a base note **Tempo Value** (4/4 default = quarter note).
c. Check the **Metronome Mark Visibility** box to display the Metronome Mark in the ENF document in the first measure.

Refer to “Tempo Markings” on page 110 for entering change-of-tempos.

9.2.32 Edit -> Guitar Chord Library

The Guitar Chord library contains preset guitar chords and associated chord symbols. You may add, change, delete and store any custom chords. Guitar frets and chord symbols automatically transpose with key transposition. Refer to “Guitar Frets and Chord Symbols” on page 71 for details.

9.2.33 Edit -> Join Voices

Automatically join offset voices to one “vertical event” as described in “Vertical Alignment and offset voices” on page 39.

9.2.34 Edit ->Transpose (Ctrl +T / Cmnd+T)

Transpose your score by key or by clef. Limit to a part, a voice or select a range. Refer to “Transposition” on page 93 for details.

9.2.35 Edit -> Edit Mode

- **Zoom (Ctrl+Z / Cmnd+Z)**
- **Select tool (Ctrl+O / Cmnd+O)**
- **Insert** / **Change** - See “Insert and Change modes” on page 52.
- **Delete by Group / Delete Any** - See “Delete by Group / Delete Any (X)” on page 87.
- **Edit Shapes** - See “Voice Splitting (H)” on page 105.

9.2.36 Edit -> Special

- **Vertical Alignment (Y)** - See “Vertical Alignment” on page 39.
- **Beam Notes (B)** - See “To convert a sequence of flagged notes into one beamed group,” on page 87.
- **Split Voices (H)** - See “Voice Splitting (H)” on page 105.
- **Flip Stems (S)** - See “Stem direction (S)” on page 89.

- **Delete Selected Ties/ Articulations (G)** - See “Delete Selected Ties and Articulations (G)” on page 88.

9.2.37 Edit -> Error Check (Ctrl +E / Cmnd+E)

Automatically check for errors such as missing notes and rests in voice-lines. Refer to “Error Check” on page 56 for more details.

ENF VIEW Menu

9.2.38 View -> Toolbars

- **Navigator**

Opens and closes the SmartScore Navigator.

- **Main**

Opens and closes Main Toolbar

- **SmartScore**

Opens and closes SmartScore Toolbar

- **Image**

Opens and closes Image Editing Toolbar

- **Text and Controllers**

Opens and closes the toolbar containing control buttons for text and graphical controllers.

- **Mini Console**

Opens and closes the Mini playback console in ENF view.

- **Status Bar**

Opens and closes Status Bar at the bottom of main SmartScore Window. Displays current page, cursor position, image size, and zoom percentage. Clicking inside any of the diplays opens a navigation aid or zoom window.

9.2.39 View -> Palettes

Refer to page 84, "Tool Palettes (F1-F9 keys)" for details.

9.2.40 View -> Open at Startup

When this option is active, Toolbars and Palettes that are checked will open by default when SmartScore is launched. Use to override default toolbar and palette displays.

9.2.41 View -> Show Active Staff

This selection will cause the ENF display to highlight the active staff in black while other staves become grey. The active staffline is the staff that the mouse pointer was last positioned over.

TIP: Show Active Staff is useful when notation objects do not respond to editing actions. Using this view option might reveal that they actually belong to an adjacent staffline.

TIP: If an object does not delete even if it shows itself to be in an active staff, use the Select tool (SmartScore Toolbar) to highlight it and then hit the **Delete** key. All selected objects will be removed with the Delete key, whether they are in the active staff or not.

9.2.42 View -> Hidden Symbols

Refer to page 108, "Hidden Symbols" for details.

9.2.43 View -> Break Barline

Choose this option to break barlines by instrument groups. For more details, see page 172, "Edit -> Bracketing (Ctrl+B or Cmnd+B)"

9.2.44 View -> Cross-staff Voicing

Choose **solid** or **dashed** line to indicate when a voice crosses over to an adjacent staff line (“visiting”). Refer to “Cross-staff voicing” on page 105.

9.2.45 View -> Show Part Names

To display the part name or abbreviation on the left staffline margin,

a. Selecting **Show Part Names and Abbreviations** displays Part Names in the first system and the Part Abbreviations in subsequent systems.

b. Select **Show Part Names Only** or **Part Numbers Only** to display just name or number in the 1st system and nothing more.

NOTE: For information on selecting and modifying Part Names, see "Instrument Templates" on page 101.

c. Selecting **Do Not Show** will nor display any Part Names or abbreviations in the ENF display.

9.2.46 View -> Chord Symbols

Select how inserted chord symbols should display...

- **Show Symbols and Frets** displays guitar chord and symbol name.
- **Show Symbol** displays only the symbol name.
- **Show Fretboard** displays only the guitar chord.
- **Long Minor** will display "min" instead of "m" for the word "minor".

9.2.47 View -> True Scrolling

It is possible to view several pages at once with Print Preview. Select this option either from the **File** or **View** menus or by pushing the "Print Preview" button in the lower right-hand corner of the ENF display.

FIGURE 8 - 13: Print Preview- Horizontal Format

- **Horizontal** format

Select from **View** or push this button to view pages in horizontal format.

- **Vertical** format

Select from **View** or push this button to view pages in vertical format.

9.2.48 View ->Associate Image Files

Synchronization between the ENF and TIFF panes assumes exact ENF correspondence to the original score structure. Synchronization may become lost after systems are inserted, removed or if page margins are changed. Once a system rolls from one page to another, ENF-TIFF synchronization will become lost for all subsequent pages.

TIP: To keep ENF to TIFF panes synchronized for as long as possible, complete all ENF editing before inserting systems (Edit -> System -> Insert). Synchronization may be regained by resizing top and/or bottom margins in Page Setup after making small changes; e.g. after altering line spacing. Refer to “File -> Page Setup” on page 169 for more details on controlling page margins.

To synchronize ENF and TIFF views,

a. Go to **View > Associate Image Files...**

FIGURE 8 - 14: Associate Image File Window

b. Push **Add** to locate the TIF file associated with the open document. Browse your computer to find the image file. If the file contains several pages of images, they will appear as xxxP1, xxxP2, xxxP3, etc.

c. Click to highlight a page in the image-page list. A preview of the page will appear in the view window if *Preview* is checked. Then click on the appropriate ENF page in the list of ENF pages.

d. Push the **Associate** button to associate the image page with the appropriate ENF page. Continue as necessary.

9.2.49 View -> Image Information

Provides information on the structure and type of the currently displayed image file.

- **Next Page**

Displays next page of ENF document

- **Previous Page**

Displays previous page of ENF document

- **Go to Page (Ctrl +G / Cmnd+G)**

Presents a dialog box to select a page number to jump to. Refer to “Paging” on page 50 for details.

- **Zoom**

Lists available view percentages. Changing zoom will affect both the image and the ENF file simultaneously. Range is from 8% to 400% view scale.

9.2.50 View -> Zoom Window

Provides options for the floating zoom window including whether to display ENF or TIFF close-ups in the zoom window and selecting additional zoom views. Refer to page 83, "Split-screen and Zoom Window Viewing" for details on the floating zoom window.

9.2.51 New MIDI View (Ctrl +I / Cmnd+I)

Opens New MIDI View dialog box. Select type of MIDI view.

- **Overview -** Displays all staves as MIDI tracks.
- **Piano Roll -** Displays selected stave as MIDI track.
- **Event List -** Displays MIDI events of selected staff line.

ENF OPTIONS Menu

- **Options ->Measure Numbers**

There are several options for displaying measure numbers in an ENF file. Under the **Options** menu, highlight Measure Numbers.

- **None** - removes all measure numbers from the ENF file.
- **Every Staff** - displays a measure number for the first measure of each system only.
- **Every Measure** - displays a measure number at each barline**.**

9.2.52 Options -> Color Mode

For detailed discussion of color modes, refer to page 103, "Working with Voices and Colors".

- **Voice**

  Each voice of a staff line will display in a different color.

- **By Part**

  Each staff line will display in a different color or in black.

9.2.53 Define Colors

- **Voices**

Define the colors used to identify each of four contrapuntal voices.

- **Part Color**

Define the colors used while Color > By Part is selected.

- **Background**

Define the background color for the ENF document or Image file.

9.2.54 Options -> Overlapping notes

Often two notes of different voices share the same pitch at the same time. You can choose whether you want noteheads of different voices to overlap one another or to become offset next to each other. To allow overlapping noteheads, check off "**Overlap Notes**" in the **Options** menu. Playback will not be affected whether note heads are offset or overlap.

9.2.55 Options -> Align Lyrics to the Left

Lyric fields are normally center-aligned to their associated note or rest. Choose this option to left-align lyrics. All lyric fields will be affected.

9.2.56 Options -> Accidental Stacking Rule

You may choose two alternative methods of stacking accidentals:

- **Diagonal**

Applies the rule that adjacent accidentals should be positioned as closely as possible to each other and become diagonally offset.

- **Zig-Zag**

Attempts to arrange accidentals in back-and-forth rows no more than three spaces wide.

9.2.57 Options -> Virtual Drum Kit

Refer to "Recording a virtual drum track" on page 81.

9.2.58 Options -> Virtual Drum Kit Definition

Refer to "Defining Virtual Drum Kit" on page 82.

9.2.59 Options -> Auto Save

Open ENF files are automatically saved as a backup file. Should your computer crash or a session somehow becomes interrupted, you will be prompted that a previous version was detected when you reopen SmartScore. If so, accept the backup and save it.

You may change how frequently you want to Auto Save to backup your current ENF file.

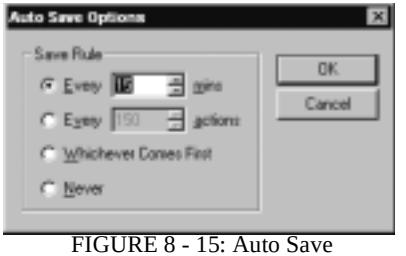


FIGURE 8 - 15: Auto Save

To change backup intervals for Auto Save,

- Select **Auto Save** from the **Options** menu.

The active, topmost ENF file will be saved as follows:

- **Every *n* minutes -** even if no editing takes place**.**
- **Every *n* actions** - based on number of editing actions, e.g. Inserting, Changing, Deleting, etc**.**
- **Whichever Comes First** - based on which is first; the number of minutes selected or the number of actions performed**.**
- **Never** - deactivates Auto Save of the ENF file.

9.2.60 Options -> Reset Tools and Palettes

Resets all toolbars and palettes to the default choices set at installation.

9.2.61 Options -> Reset Tools and Palettes

Reactivates all warning windows that can be “permanently” disabled by user. This applies to warning windows that have a “***Do not show this warning again***.” checkbox option. If selected again, warning windows will not appear again until program is reinstalled or until Rest Warnings is selected again.

ENF PLAYBACK Menu

9.2.62 Playback -> Set Playback Range

Refer to “Set Play Range” on page 46.

9.2.63 Playback -> Play / Stop / Rewind

Used to control playback functions from menu.

9.2.64 Playback -> Thru

Sets MIDI device to play “live” without ***MIDI Record*** on.

9.2.65 Playback -> Console

Opens Playback Console **(Ctrl+9 / Cmnd+9**).

9.2.66 Playback -> Mini Console

Opens and closes Mini Console toolbar.

9.2.67 Playback -> MIDI Devices

Opens MIDI device dialog box. Select MIDI input and output sources. Refer to “MIDI Devices” on page 34 for details.

9.2.68 Playback -> Swing

Turns swing playback on or off. Refer to “Swing” on page 47.

9.2.69 Playback -> Sound tone when entering note

Notes will sound their pitch when entered or when shifted up or down. Check this option off to not sound pitches while editing.

9.2.70 Playback -> Sound grace notes.

Select whether to play grace notes before the following note (default) or on the beat of the following note. Refer to “Grace Notes” on page 54.

9.2.71 Playback -> Drum Set

This window allows you to map MIDI Drum instruments to staff lines and spaces when percussion clef is assigned to a staff. For more details, turn to “Percussion clef (Clefs Palette)” on page 77.

9.2.72 Playback -> Lock to Time Signature

Refer to “Lock to Time Signature” on page 41.

9.2.73 Playback -> Ignore

Select to ignore playback of ENF dynamics, repeats or articulations.

9.2.74 Playback -> Graphical Controller

Refer to “Graphical controllers” on page 43.

9.2.75 Playback -> Refresh MIDI

Select if playback looses synchronization. Refresh MIDI resets playback based on the ENF display only. All tracks recorded in MIDI are lost. For details, see “Updating and refreshing playback and display” on page 128

Help Menu

- **Help -> SmartScore Manual (PDF)**

In CD versions, this selection will open the file, SSManual.pdf. This file is the full *Using SmartScore Version 2.0* manual in Adobe Acrobat format. It can be opened by Adobe Acrobat.

In download versions, this selection will attempt to open an Internet connection and begin downloading of the file, SSManual.pdf from the Musitek website. If the file is moved to the SmartScore directory, the file will open when the Help -> SmartScore Manual (PDF) selection is made again.

- **Help -> Online Help**

This selection will attempt to launch your Internet browser and connect to a special interactive help system online at musitek.com. The Online Help system is fully interactive and contains index links, table of contents links and text hyperlinks to related subjects.

- **Help -> Helper Files** *(Mac Download Versions only)*

This selection will attempt to launch your Macintosh Internet browser and connect to a special online directory that contains installer files for downloading that may be helpful to Mac users who downloaded their versions. Installer files include:
FreeMIDI
OMS
Acrobat Reader

9.3 MIDI Menu Items

MIDI FILE Menu

- **File -> New**

Select between a new ENF or a new MIDI. Choosing New ENF will open the New SmartScore Document window. Select a Template or use Custom to create a unique score. Choosing New MIDI will open a blank MIDI Overview and Piano Roll for MIDI input.

- **File -> Open (Ctrl +O / Cmnd+O)**

Opens File Selection dialog box and lists saved files. A selected file will be loaded into memory and will display on the screen.

- **File -> Close** - (**Cmnd+W** *Mac*)

Closes all MIDI views. If any changes were made to the MIDI file, option to Save MIDI file. Return to main SmartScore window.

- **File -> Save (Ctrl +S / Cmnd+S)**

Writes currently displayed file to the hard disk.

- **File -> Save As**

Opens Windows File Selection dialog box

Save processed or modified MIDI files to hard disk following MIDI Recording or Editing procedures.

Use to save selected files to directory other than the working directory

- **File -> Recent (1,2,3, or 4)**

Automatically loads one of the last four files accessed by SmartScore (Win). Select any recent files by type (Mac).

- **File -> Exit/ Quit**- (**Cmnd+Q**)

Exit SmartScore. Save current file. Go to Windows main desktop.

MIDI EDIT Menu

- **Edit -> Undo** (**Ctrl +Z / Cmnd+Z)**

Reverses the last action you performed. SmartScore has ninety-nine layers of Undo.

- **Edit -> Redo** (**Ctrl +Y / Cmnd+Y)**

Reapplies the last action that has been Undone.

- **Edit -> Select**

Opens the Select window for defined note selection.

- **Edit -> Select All (Ctrl +A / Cmnd+A)**

Selects all MIDI events in every track.

- **Edit -> Cut** (**Ctrl +X / Cmnd+X)**

Removes the highlighted notes from the score and places them in the clipboard.

- **Edit -> Copy (Ctrl +C** Win **/ Cmnd+C** *Mac***)**

Places selected notes on the clipboard without removing them from the score.

- **Edit -> Paste** (**Ctrl +V / Cmnd+V)**

Insert the contents of the clipboard back into the score without deleting the existing notes.

- **Paste Special**

Opens the Paste Special window. The Paste Special window offers several options for pasting the contents of the clipboard back into the music.

- **Edit -> Delete (Del)**

Deletes the selected section from the MIDI file.

- **Edit -> Program Change (Piano Roll only)**

Opens the Change Instrument window. Insert a change to a new MIDI patch.

- **Edit -> Velocity/ Duration**

Opens the Velocity and Duration window. Adjust the Velocity and/ or Duration of the selected MIDI events.

MIDI VIEW Menu

- **View -> Navigator**

Opens and closes the SmartScore Navigator.

- **View -> Main Toolbar**

Opens and closes Main Toolbar

- **View -> SmartScore Toolbar**

Opens and closes SmartScore Toolbar

- **View -> Image Toolbar**

Opens and closes Image Editing Toolbar

- **View -> Status Bar**

Opens and closes Status Bar at the bottom of main SmartScore Window. Displays current page, cursor position, image size, and zoom percentage

- **View -> New MIDI View**

Opens New MIDI View dialog box. Select type of view.

  - Overview- Displays all staves as MIDI tracks
  - Piano Roll- Displays selected stave as MIDI track
  - Event List- Displays MIDI events of selected stave

- **View -> Show Track 0 (only in Overview)**

Displays MIDI channel 0 in MIDI Overview

- **View -> Synchronize**

Synchronizes measure sizes in all MIDI views to that of current MIDI view. Further horizontal resizing synchronized between all MIDI views.

- **View -> New ENF View**

Opens the MIDI-to-ENF window for converting the active MIDI file into and ENF document.

MIDI OPTIONS Menu

- **Options -> Snap to** (Quantization)

Quantities selected MIDI "Note On" events to the nearest "tick" specified. Also determines default quantization value for MIDI recording and for horizontal nudging of selected MIDI events by mouse dragging or by use of the arrow keys. Quantization values range from 32nd triplet to whole note.

- **Options -> Time Format**

Select whether start time of note events is displayed with Measure: Beat: Tick numbers or solely with Tick numbers.

- **Options -> Velocity Format**

Select whether Velocity of note events is displayed with absolute numbers or as percentages.

- **Options -> File Settings**

Opens Sequence Settings window. Shows the MIDI header information including: tempo, time base, time signature, key, and MIDI instrument.

- **Options -> Track (not in Overview)**

Opens Track Properties dialog box. Select a different track view, delete, duplicate, rename, or transpose the selected track.

- **Options -> MIDI Device**

Opens MIDI device dialog box. Select MIDI input and output sources.

- **Options -> Instrument Settings**

Opens Instrument Settings dialog box. Allows for selection of Port, Bank, and MIDI channel assignment for Instrument and Drum sources.

- **Options -> Metronome Settings**

Opens Metronome Settings dialog box. Allows for selection of Port, MIDI Channel, number of lead in measures, MIDI sound and volume for Primary and Secondary beats.

- **Options -> Shuttle On**

Activate/ deactivate SmartScore's shuttle tool.

OMS (Mac Only)

- **OMS MIDI Setup**

Displays the current port selection for MIDI Device connection to your computer. A new Setup can be created from here.

- **OMS Studio Setup**

Launches OMS for editing of your current OMS studio setup

- **All Notes Off**

Shuts off MIDI output.

MIDI REALTIME Menu

- **Realtime -> Set Playback Range**

Opens Set MIDI Play Range dialog window.

- **Realtime -> Play/ Pause "Spacebar"**

Begins/ pauses/ resumes playback of current MIDI file. In Record Mode will start and pause MIDI recording.

- **Realtime -> Stop**

Stops playback or recording of current MIDI file.

- **Realtime -> Rewind "," comma**

Rewinds to beginning of Set Playback Range.

- **Realtime -> Solo (not in Overview)**

Solos the active track during playback.

- **Realtime -> Record**

Check to activate MIDI Record mode

- **Realtime -> External Timer**

Set recording to begin from an external signal.

- **Realtime -> Synchro Start**

Active only in Record Mode, check to synchronize start of MIDI recording with first note played on MIDI keyboard.

- **Realtime -> Thru**

Allows MIDI input to sound

- **Realtime -> Metronome**

Activates/ deactivates Metronome in recording

- **Realtime -> Playback Console (Ctrl + 9 / Cmnd+9)**

Opens the Playback Console.

MIDI WINDOW Menu

- **Window -> New Window**

Opens a second copy of the current MIDI view.

- **Window -> Cascade**

Layers all open windows within main SmartScore window. Active window is stacked on top.

- **Window -> Tile**

Arranges all open windows to fit within main SmartScore window. Windows are arranged from left to right, top to bottom starting with the active window.

9.4 Image Menu Items

Image FILE Menu

- **File -> New**

Select between a new ENF or a new MIDI. Choosing New ENF will open the New SmartScore Document window. Select a Template or use Custom to create a unique score. Choosing New MIDI will open a blank MIDI Overview and Piano Roll for MIDI input.

- **File -> Open** (**Ctrl +O / Cmnd+O)**

Opens File Selection dialog box and lists saved files. A selected file will be loaded into memory and will display on the screen.

- **File -> Save** (**Ctrl +S / Cmnd+T)**

Writes currently displayed file to the hard disk.

- **File -> Save As**

Opens Windows File Selection dialog box

Save processed or modified Image files to hard disk following Scanning and Editing. Use to save selected files to directory other than the working directory.

- **File -> Scan Music**

Selects scanner or initiates scanner to acquire image.

- **File -> Recognition**

Initiates Recognition to begin processing saved image file(s).

- **File -> Print** (**Ctrl +P** Win **/ Cmnd+P** *Mac***)**

Initiates Windows Print Monitor. Current Image file is output to default printer from selected printer port.

- **File -> Recent (1,2,3, or 4)**

Automatically loads one of the last four files accessed by SmartScore (Win). Select any recent files by type (Mac)

- **File -> Exit/ Quit (Cmnd+Q** *Mac***)**

Exit SmartScore. Save current file. Go to Windows main desktop.

Image EDIT Menu

- **Edit -> Undo (Ctrl +Z / Cmnd+Z)**

Reverses the last action you performed. SmartScore has ninety-nine layers of Undo.

- **Edit -> Redo** (**Ctrl +Y / Cmnd+Y**

Reapplies the last action that has been Undone.

- **Edit -> Cut** (**Ctrl +X / Cmnd+X)**

Removes the selected section from the image file and places it on the clipboard

- **Edit -> Copy** (**Ctrl +C / Cmnd+C)**

Places selected section on the clipboard without removing it from the image file.

- **Edit -> Paste** (**Ctrl +V / Cmnd+V)**

Insert the contents of the clipboard back into the image file

- **Edit -> Delete** (**Del)**

Deletes the selected section from the image file.

- **Edit -> Crop**

Trims the image file down to the selected region

- **Edit -> Invert**

Switches the colors of the image file.

- **Edit -> Rotate**
  - Left: Rotates the image file counter-clockwise
  - Right: Rotates the image file clockwise
  - Any: Opens the Rotate window for rotation by defines degrees.
- **Edit -> Selection**

Activates the Area Selection tool.

- **Edit -> Line**

Activates the Line drawing tool.

- **Edit -> Brush**

Activates the Brush tool.

- **Edit -> Deskew**

Activates the Deskew tool for straightening “crooked” scans

- **Edit -> Selection Mode**
  - Opaque

    When a selected area is moved to the clipboard the background will be included
  - Transparent

    When a selected area is moved to the clipboard only the black portion of the selected area with be moved.

- **Edit -> Pen Color**

Select the color used by the Brush and Line drawing tools.

Image VIEW Menu

- **View -> Navigator**

Opens and closes the SmartScore Navigator.

- **View -> Main Toolbar**

Opens and closes Main Toolbar

- **View -> SmartScore Toolbar**

Opens and closes SmartScore Toolbar

- **View -> Image Toolbar**

Opens and closes Image Editing Toolbar

- **View -> Status Bar**

Opens and closes Status Bar at the bottom of main SmartScore Window. Displays current page, cursor position, image size, and zoom percentage.

- **View -> Palettes**

Opens and closes tool palettes for ENF document editing.

- **View -> Image Information**

Provides information on the structure and type of the currently displayed image file.

- **View -> Next Page**

Displays next page of ENF document

- **View -> Previous Page**

Displays previous page of ENF document

- **View -> Go to Page (Ctrl +G** Win **/ Cmnd+G** *Mac***)**

Presents a dialog box to select a page number to jump to. Use scroller to select desired page and click OK.

- **View -> Zoom**

Lists available view percentages. Changing zoom will affect both the image and the ENF file simultaneously.

- **View -> Window**

Opens a second copy of the current ENF document.

- **View -> Cascade**

Layers all open windows within main SmartScore window. Active window is stacked on top.

- **View -> Tile**

Arranges all open windows to fit within main SmartScore window. Windows are arranged from left to right, top to bottom starting with the active window.

Image REALTIME Menu

- **Realtime -> Thru**

Allows MIDI input to sound while recording.

INDEX

A
Accaciatura 54
accent
    editing 112, 113
    playback 161
accidentals, editing 89, 182
accuracy, recognition 22, 29
active staffline 51, 177
Apply To
    System Manager 100
Apply-New 100
arpeggio 114
articulations 110
    deleting 114
    editing 112
    palette button 160
Associate Image Files 179
Auto Save 182
B
barlines
    bracketing 76
    breaking 177
    editing 59
    repeat 118
beaming flagged notes 87
beams
    changing angles and height 60, 69
    cross-measure 106
    cross-staff voicing 105
bowings 14
bracketing 75
C
chord
    deleting single note from 87
    splitting into voices 105
chord cluster tool 53
chord symbols 71, 178
    editing and adding 73
    recognition of 71
clefs
    editing 162
    transposition 93
    unifying 122
Coda 119
Color Mode
    overriding automatic color 104
    parts and voices 38, 103, 104
Colors, defining 181
conductor score from parts 14, 21
Copy 171
    ENF region to clipboard 63
courtesy accidentals 90
crescendos and decrescendos
    hiding 108
    inserting 111
    properties 115
Crop 27
cross-measure beaming 106
cross-staff voicing 105
D
dal Capo 120
Darkness, scanning 5, 9
delete 55
    a note from chord 53
    selected ties & articulations 88
    when all else fails (Tip) 55, 177
Delete / Delete Any toggle 53, 87
dithered images 4

Dot of Prolongation 58
drag zoom, MIDI 132
drums
    automatic drum patterns 78
    virtual 81
    working with 77
dynamics 90, 110
    inserting 110
    properties 116, 117
E
Edit Shapes 60, 69
    moving fret and chord symbols 74
endings 14
endings, multiple
    editing 118
ENF
    adding or removing parts 101
    associate view with image 179
    bracketing 75
    creating a new page 62
    creating from scratch 61
    Cut, Copy and Paste 171
    editing modes 52
    editing scanned files 19
    Error Check 56
    Graphical Controllers 43
    multiple endings 118
    Paging 84
    playback 33
    preliminary cleanup 51
    Save as PDF 170
    saving and exporting 63
    Score Header 174
    scrolling 84
    Select area 63
    set play range 46
    Status Bar 51
    System Manager 97
    Templates 62
    tempo marking 174
    Zoom 50, 132, 136
ENF - MIDI
    relationship 128
    remove articulations 64
ENF Menu Items 167
ENF playback 33
    real-time settings 37
Error Check 36, 56
exporting ENF files 63
extracting parts and voices
    Apply-New 100
F
fermata
    editing 112
    playback 160
Finale
    exporting to 64
Fine 121
flagged notes
    beaming 87
fonts, changing styles 68
Format Score 174
G
glissando 114
Go to… 84
grace notes 54
Graphical Controllers
    ENF 43
    MIDI 136
guitar frets & chord symbols
    display 178
    editing and adding 73
    inserting 71
    moving 74

recognizing 15
scaling 75
H
hairpin
properties 115
hairpins
inserting 111
Help menu 185
Hidden Symbols 108
horizontal nudging 69
horizontal reformatting 70
I
image background 31
Image Editor 25
Cut/ Copy and Paste 31
image info 25
pen options 26
Insert/ Change toggle 52, 86
inserting new systems 173
Instrument Templates 48, 101
instrument, select for playback 38
Invert Image 3, 10
J
Join Voices 40
K
key signature
change 164
at end of line 165
unifying 122
key transposition 60, 93
L
Lock to Time Signature 34, 41
Lyrics 66
aligning 182
recognizing 14
when found under last staff 14
M
map, Quick Keys 126
Measure Numbers 181
metronome markings 110
MIDI
closing MIDI views 131
Cut/Copy and Paste 143
display controls 152
Event List 148
event selection 140
Graphical Controllers 136
importing files 123
inserting note events 149
Instrument settings 138
measure settings 144
metronome 153
note characteristics 141
Note Event 142
opening from an ENF document 180
opening from ENF document 130
patch 137
playback 133
playback range 135
Program Change 137
recording 153
new tracks 155
Refresh 128
repeats and endings 146
select by time frame 140
shuttle tool 137
snap to 155, 189
Step Time Recording 157
switching tracks 137
Track Overview 131
velocity and duration 142
Zoom 132

MIDI Devices 34, 134
MIDI instruments
assigning 98
MIDI Menu Items 186
MIDI Refresh 35, 129
MIDI to ENF 123
miniatures, scanning 5, 9
Mini-Console 33
modes
color 103
insert and change 52, 86
mordent
editing 112
playback 161
multiple endings 118
N
navigating around ENF 50, 83
NIFF 168
normalize graphical controllers 44
notes 86
add to (cluster) 53
associated with lyric block 66
beaming 57
changing pitch 56, 86
changing values 86
color 55
delete from chord 53
dotted 58
forming chords 53
grace notes 54
horizontal nudging 60
insert, change & delete 52, 86
nudging 70
overlap or offset 107
splitting 105
stem direction 57, 89
swapping noteheads 107
nudging objects 60, 70
O
offset notes 107
OMS 35
optimized systems 172
P
page, creating new 62
Paint Brush 27
parts
add or remove from score 101
color mode 104
extracting 99
insert or remove from system 173
naming in System Manager 98
show names in ENF 177
Paste 171
Paste / Replace 172
PDF 170
pedals 14
Percussion clef 77, 164
Piano Roll 135
pickup measures 42
pitch shift 56
Playback
lock to time 34
tempo 36
transposing 36
Playback Console 107, 151
Print Preview 169
Printing 170
Program Change
Event List 151
Piano Roll 137
Properties Tool 115
Q
quantization 189

Quick Keys 86
Barlines 90
Beam Direction 88
Delete Ties & Articulations 88
Dots 88
Dynamics 90
Flags and Beams 88
Note Values 91
QuickSelect 86
Rests 90
Select 87
Stem Direction 89
Ties 88
Tool Palettes 54, 84
Tuplets 90
Unify Signatures/Clefs 91
Vertical Alignment 40
Quick-Select 54
R
recognition
bowings 14
endings 14
fretboard 15
hymnal fonts 14
join offset voices 15
lyrics and text 14
lyrics under every staff 14
options and preview tabs 12
pedals 14
poor 5, 22
pre-scanned music 19
relink parts 15
triplets 14
record new MIDI track 155
Refresh MIDI 47, 129
refreshing ENF playback 128
Relink Parts
after Unify 122
Repeat previous measure mark 118
repeats
editing 118
repeats and endings 47
reset windows and palettes 53
Resolution, scanning 5, 9
rests 50, 86
associated with lyric block 66
multi-measure 86
Rotate scanned image 29
S
Save ENF 63, 167
Scanner Drivers for Macintosh 7
scanning music 2
manual/automatic 6
user interface 6
Score from Scratch 62
Score Header 174
Score-Part 174
scanning in 21
Segno 120
Piano Roll 146
Sibelius
exporting to 64
signature
unifying 122
signatures 164
Slur 160
slur
editing 58, 112
playback 160
SmartScore scanning interface 2
soft accent
playback 161
split measures 42
Split-screen Viewing 83

staccato
editing 113
playback 160
staff
active 177
stem direction
changing 58, 89
Step Time Recording 157
Super System 101
apply changes to 100
system
apply changes to 100
collapsing and expanding 172
insert above/below/remove 173
System Manager 97
Controlling system 101
Part Names 98
Visibility 99
System Report 16
System+, apply changes to 100
T
tempo
markings 110
properties 117
set default 43, 174
setting and changing 42
Tempo Controller
ENF 44
MIDI 136
Tempo slider 145
tenuto
editing 113
playback 161
Text
deleting 66
editing 65
This 177
Ties 59
tiling views 93, 136
time signature
change 164
at end of line 165
unifying 122
Tool palettes 160
palette modes 54, 85
resetting 53
Toolbars 176
open at startup 177
transposed instruments 48, 102
Transposition 60, 93
tremelo 113
playback 162
trill
editing 113
extended 113
playback 161
trills and mordents 112
triplets 14, 58
implied 14
nested 59
True Scrolling 178
Tuplet
user-defined 59
turn
editing 112
playback 160
U
Undo 53
Unify key, time and clefs 121
V
Velocity Controller
ENF 44
MIDI 136
vertical alignment 39
correcting 40

verifying 40, 71
vertical event 15, 69
View > Color > By Voice 38
views, tiling 93
voice color 38
override automatic 55
switching 103
Voiceline 37
voiceline
color 103
visibility 99
visiting another staff 106, 177
voices
assigning instruments to 38, 98, 138
color modes 103
extracting 99
offset 15, 39
splitting 105
using hidden rests 108
vertically aligning 40
Z
Zoom
ENF 50
MIDI 132
Piano Roll 132
Window view 83